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CHAPTER VIII

THROUGH THE SEMLIKI VALLEY TO THE KILO GOLDFIELDS

ON the first day's march in the New Year, we were wandering through acacia forests and finding many fresh elephant tracks. We traversed steep, romantic, rocky regions up to Karimi on the Semliki, where we crossed. At this point we passed the equator for the sixth time on our travels, for, apart from our journey across the Indian Ocean, we were given the further opportunities of passing it on Lake Victoria, and again when near Kasindi.

On the day following we set up camp at the mission station of St. Gustave, where we were most hospitably received by Father Superior Farinelli. This mission, which had only been established about a year, had been levelled to the ground by a hurricane, and they had recently been celebrating its restoration. The houses and the chapel, constructed of *matete*, gave a very trim and pleasing impression. This was still further enhanced by the kindly demeanour of the mission brethren, who are specially esteemed by the Congolese on account of their avoidance of political affairs.

At our next camp, Sambia, after a hot, tedious march over somewhat flat country, we were agreeably surprised to meet Creydt, the Austrian cavalry captain, who, on hunting bent, had marched thither over Fort Portal. On the 13th of January we caught a glimpse in the distance of the spruce-looking houses of Beni, resting on the plateau of a hill of large circumference. Before reaching it, however, we had to pass in intense heat over many deep gullies which intersected a broad grass steppe. The latter presented a somewhat novel botanical aspect, as it was almost exclusively grown over with borassus palms. Many old

and fresh buffalo and elephant paths gave evidence of an abundance of game.

We were received at Beni by Derche, the chief commandant of the district, at the head of his forces, and accompanied by the officers of his staff, who had kindly protracted their visit of inspection until our arrival.

Next to the German station, Kissenji, on Lake Kiwu, Beni is doubtless the most attractive of the inland stations which we visited. The choice of its position alone gives evidence of forethought and taste. The gently sloping hill rising from the level plain of the Central African rift-valley, on which Beni is erected, is brushed on its western edge by the Great African forest, which extends to Ubangi, whilst the south-eastern slope falls away steeply to the Semliki, which winds and bends around the foot of the station, its average breadth being about 100 metres. Pretty, white-washed houses present a friendly aspect, an impression which is increased by a broad, open space on which waves the blue flag with the yellow star. The houses are connected by trim paths, bordered with banana trees.

The Belgian settlement in the Beni district is of quite recent date, and therefore capable of considerable development. Rebellion amongst the natives is chiefly answerable for the delayed opening up of this fertile district. The fear of punishment for past misdeeds drove the natives into the mountains every time the Belgians appeared, and frustrated all pacific and conciliatory approaches. It was not until the year 1907 that some of the tribes could be induced to return to their villages and homes, where they were treated with all kindness and assured of the groundlessness of their fears. Their example brought others back, and whilst we were there we saw banana plantations flourishing again, and agriculture generally in a thriving condition. At the back of the mountain ranges there are still many chieftains, however, who refuse allegiance to all Europeans, and are looked upon, with reason, as dangerous. Even though these rebels may not openly attack, yet by their attitude they greatly impede the proper cultivation of the land. Apart from their



BENI



FERRY AT BENI

endeavours to incite a peaceful people to disobedience, they deprive the country of a considerable number of carriers and labourers.

A broad caravan road connects Beni with the Mawambi station, on the Aruwimi, and opens into the Irumu-Stanleyville highway (on the Congo). This direct communication with the greatest waterway of Central Africa lends considerable importance to the settlements. The commercial traffic is extremely limited here, as is the case all over the Congo State, on account of the difficult conditions prevailing. Naturally, many traders, mainly Indians, take advantage of the neighbouring forest, with its immense tracts and inadequate control, for smuggling purposes.

Beni is strongly garrisoned. During our visit the soldiers were most zealously drilled. At six o'clock in the morning the signal for parade resounded in the quiet air. Not only did the company itself respond to the call for daily duty, but also all the male and female hands on the station, about two hundred in number. Whilst the troops started their duties, the *Chef de poste* allotted to the labourers their daily tasks. Strict discipline was exercised at the muster. The presence of every individual was carefully checked when his name was called. Absence without excuse was punished, but this occurred very seldom. At eight o'clock the soldiers rested, whilst the Europeans assembled for breakfast. This meal was suited to African conditions, and consisted of coffee or tea, bread and butter, cold meat, fruit and cheese.

After breakfast was over, the military exercises, which I often attended, were continued till about 11 o'clock, when there was a noon-time interval. At 1 o'clock dinner was announced by two calls, and an hour later the signal for the afternoon muster was sounded, when the troops and the whole of the workers resumed duty. The afternoon's work finished at 4 o'clock. Very often there was a third muster in the evening, at which the people turned up in any rig they fancied, but generally with the characteristic Congo straw hat on their heads. Clothes, shoes, etc.,

were inspected, and wages and stores distributed. Before the signal for supper at 7 o'clock, the Europeans were in the habit of meeting in the house belonging to the *Chef de poste* to take a free and easy glass together. The evening often concluded with an excellent gramophone concert, which usually took place in glorious moonlight on the open square in front of the houses. The homely sound awakened many memories of the past, and caused our thoughts to wander away to those who were enjoying the conventional "pleasures" and festivities of the winter season in more or less stimulating society. How little I envied them! How much happier I was with the task I had imposed on myself! How rejoiced I felt at the thought of effecting something really definite, in filling in gaps of science, by opening up new fields, and by the investigations of my fellow-workers! I felt I was away from the vacuity of everyday life.

Towering aloft to the east of Beni are the prodigious masses of the Ruwenzori chain of mountains. A view of the mighty glacier which covers the summit is, however, rarely enjoyed. I had only one opportunity to gaze at it. It occurred at daybreak, and as the sun rose above the horizon the glacial ice caught up its rays and broke them into a gorgeous and scintillating display of colour. As though Nature were ashamed, however, of this puckish play of its favourite, she softly drew down a covering veil again, making it even denser, until the contour of the mountains was mysteriously obscured from the gaze of the beholder. We owed it to the increasing downpours of rain that we occasionally caught glimpses of the mountain. Torrential showers had been the order of the day for the past week.

As we sat at breakfast on the 17th of January, a hailstorm suddenly swept down with devastating force, upsetting the tents, bending the young trees almost to the ground, shaving the tops of the *papaia*,* hurling boughs and branches to the earth

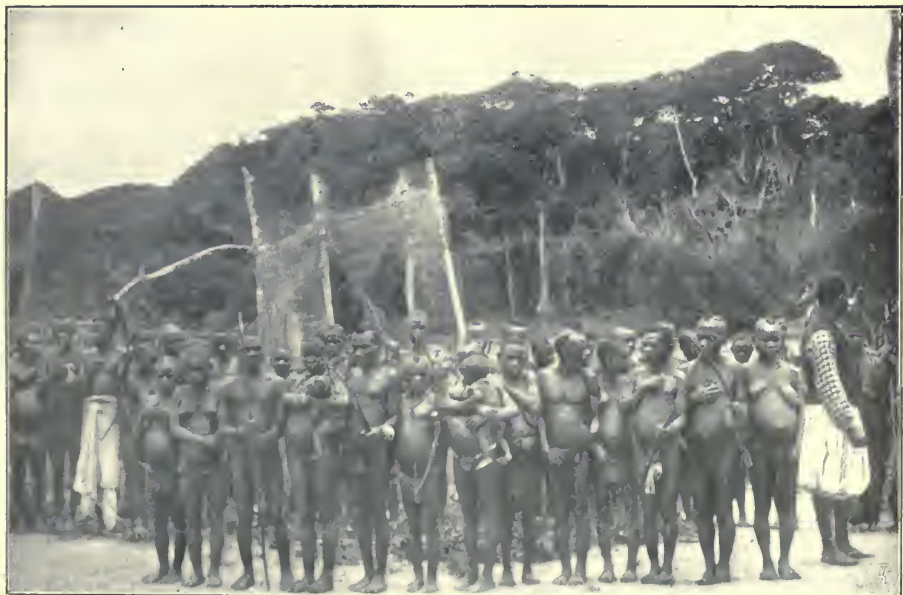
* The *papaia*, or Melon tree, bears greenish, round-shaped fruit, about as large as a coco-nut, the palatable yellow inside of which is scooped out with a spoon and counts as a particular delicacy.



IN THE BENI FOREST



FOREST DWARFS' CAMP



WAMBUTTI PYGMIES

and breaking a large number of banana trees. These phenomenal displays of the African elements usually endure but for a short time, and in this instance within a quarter of an hour the sun was laughing at the ravages of the storm.

Next day the entire expedition, accompanied by Vériter, started off on a fourteen days' excursion towards the eastern margin of the great forest. After a short march on the first day, we pitched a camp deep in the forest, close to the dwelling of the chief, Muera, who was, however, away. Breathless with expectation, we penetrated the mysterious, shadowy depths of this endless labyrinth of virgin forest. Our imagination was strongly stirred by the accounts of notable men, such as Stanley, Wissmann, and others, who had thrillingly described the delights—and terrors—of their journeyings through the leafy jungle. Since their time, however, the journey through the forest has doubtless been lessened of its terrors, but for the first few days of our stay there the full charm of its fascination was exercised upon us. All poetic fancies, however, were soon dispelled by the constantly increasing appeals to our scientific interest.

The farther we penetrated its depths the greater grew the rapture of our botanist, for he discovered flora which differed essentially from any that we had hitherto encountered in the forests. We also constantly came across zoological novelties, more particularly smaller kinds of birds and lower forms of animal life. Nevertheless, Schubotz, strange to say, found species, particularly among the birds and the lepidoptera, which, in spite of their pronounced western character, he had already observed in the eastern forests and on the island of Kwidschwi, on Lake Kiwu. Great keenness in collecting was soon shown, which was evinced by the valuable spoils brought in from all directions.

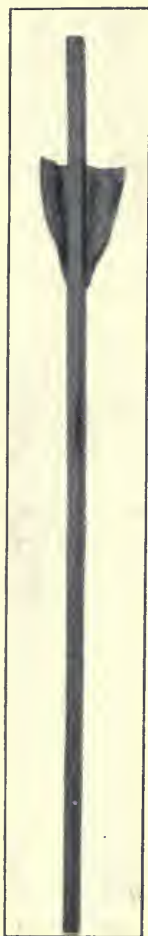
On the third day of our halt, Muera himself appeared. It was a matter of importance to us to get into contact with the Wambutti—the true pygmies—whose distributional area starts in this region. As the tribe which dwelt in the vicinity was under Muera's authority, we were dependent upon him for help.

He declared himself prepared to put us into touch with them, and, as a matter of fact, five of the tribe made their appearance on the following morning. As it was our first meeting with this exceedingly singular race, and their first meeting with white men, we regarded each other with undivided interest.

I have already described the general characteristics of the pygmies, their dimensions, appearance, etc., when discussing the Batwa of the Bugoie forest, but will now supplement the information. One of their most striking features is their extremely fair skin, and, apart from their diminutiveness, makes them stand out conspicuously from the Bugoie Batwa. The pygmies are compact and strong in build; are very muscular; have round heads and short, curly hair. Big, intelligent eyes gaze out from good-humoured faces, in which the broad nose-base is typical. Their clothing consists of an apron of grey, woolly beaten bark, which is obtained from the supa tree, and fastened round the loins with a belt of grass cord. Sometimes we saw belts made from the hide of the okapi (a giraffe-like ruminant).

The weapons of the Wambutti consist of a bow and arrow and a short spear. According to their uses, whether for war or for hunting purposes, they are made of iron and wood respectively. The men forge or carve them themselves, and the arrows are all tipped with vegetable poison. From researches made by Dr. Max Krause, of the Berlin Hydro-Therapeutic Institute, it appears that the poison in these arrows is derived from a species of *strophanthus*, most probably *hispidus* or *kombe*, not *gratus*. After removing the poisonous coating for the purpose of investigation, it was found that the arrow was notched about three centimetres from the point, so as to favour its breaking off in the wound. The poison works rapidly, and is fatal in its effect unless the arrow point is withdrawn very quickly and the wound sucked dry. Big game always succumb to its effects; death follows more or less swiftly, according to the particular position of the wound.

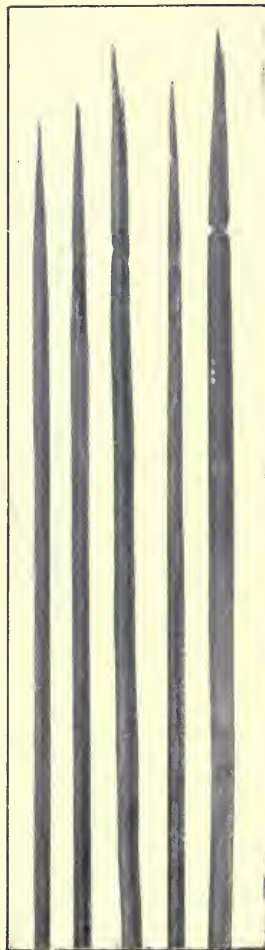
The women are most forbidding in their ugliness, and re-



HEAD OF
PYGMY
ARROW



A PYGMY OF THE
CONGO



PYGMY SPEARS
(WITH POISONED POINTS)



A PYGMY WOMAN OF THE CONGO
FOREST



WAMBUTTI WOMEN AT SALAMBONGO

semble the men as regards stature and complexion. Occasionally they wear thin copper rings drawn through their lips, and cowrie-shell pendants as ornaments. Their apparel is yet more primitive than that of their lords and masters, their apron often dwindling down to a barely perceptible triangle.

The children, who are quite naked, are carried on their mothers' hips, supported at times by a very thin cord running down from their mothers' shoulders, which occasionally cuts deeply into the infants' bodies and causes many a poor little creature to wail miserably.

The Wambutti have no fixed abode. Their place of residence changes according to their whim or hunting conditions, but is never to be found outside the forest boundary. The huts are carefully built of liane, covered over with foliage, which is scarcely proof against beating rain.

Those who do not live by pillage, theft and hunting—favourite pursuits of the entire race—spend their existence in and about these huts, occupying themselves, as mentioned, with smith-craft, carving, etc.

At Muera's village the two biologists parted from us, as they were anxious to continue their task of collecting along the road, the small birds, butterflies, etc., being more frequently met with there than in the forest itself. Later on in our march through the mysterious forest, which lasted some weeks, we noticed that the feathered tribe was more in evidence on the borders of the roads and the clearings than in the villages. The observations and collections of the botanist, too, were facilitated by the clear survey which the open country afforded.

Wiese, Vériter and I, with the dwarfs, pitched a camp right in the interior of the forest, far from all human traffic, and for eight days roamed through the jungles. Without the dwarfs' escort this would not have been practicable, as the only possible means of communication lay in the numerous elephant tracks, which would quickly have bewildered any white man.

As we ascertained by inquiry, we were already within the zone of the okapi. The reader is, doubtless, no longer un-

acquainted with the name of this singular mammal. It is only a few years back that a Scandinavian, Lieutenant Erikson, in the Belgian service, discovered the existence of an antelope-like animal, which was named "Okapi" by the forest dwellers. He was also fortunate enough to secure a skin. Through the mediation of Sir Harry Johnston, Governor of Uganda, the skin reached London, where it excited great comment amongst the savants on account of its unique quality and markings. Soon after it was acquired at a very high price for the Tring museum.

Kuhnert's picture is more instructive than pages of description. The striking markings on the legs, the length of the neck, the high withers, and the colour of the head may be regarded as the main characteristics of the creature. The height of the withers corresponds to that of a large ox.

The most remarkable part of it is how a mammal so conspicuous in character could have remained concealed until comparatively recently in a territory which has been under European administration for over twenty years, and in which over 1,000 white men live. This circumstance may well lead to the conclusion that the exploration of this vast forest region, which comprises an area several times the size of Germany, is by no means exhausted.

The bagging of an okapi by a European can only occur by accident. A systematic pursuit of this excessively shy creature would be almost useless. The density of the forest, the tread of heavy boots, the rustling of the clothes against bushes, would invariably frustrate the attempts of any European hunter. The difficulties may best be illustrated by the fact that in 1905 Major Powell Cotton, at Makala, farther westward in the forest, devoted six months to the chase of the okapi, and only obtained one animal—and that through the pygmies. At least he had the satisfaction of viewing the much coveted game immediately after it was killed—a privilege accorded to few.

Our own hopes of getting a shot at an okapi sank very rapidly when we got a closer glimpse into the positively unfathomable tangle of the forest. We soon discovered that the



THE OKAPI

From a Painting by W. Kuhnert

sight of an animal slain by pygmies would have to satisfy our ambitions, and therefore left no stone unturned at least to attain this object. Dazzling promises of baksheesh spurred on the Wambutti to great zeal. All day long they roamed alone through the forest. Tracks were found, but nothing else.

The Wambutti hunt the okapi chiefly in the rainy season. In the morning they search for a fresh trail left in the night. This they follow up through thick and thin, through all kinds of foliage and liane creepers. As the okapi ramble far and wide, the chase spins out for days. The incredibly keen scent and sagacity of these pygmies alone make it possible to keep on the trail of this strange species of game; they can follow almost imperceptible indications which entirely escape the eyes of Europeans. As the okapi nervously avoids the sun's rays, the hunters have to seek it in the densest brushwood. They are nearly always successful in creeping noiselessly up to it within a few paces, when they slay the animal by hurling poisoned spears.

The name by which this large antelope is known varies according to the district. "Okapi" and "kwapi" are mostly used, and we also heard "alabi" once. It was, too, very often called "kenge." At Mawambi, on the Aruwimi, I showed a coloured representation of the *okapi Johnstonii* to the Wambutti. They knew it at once, and unanimously said "kenge." The expressions "okapi" and "kwapi," as well as "alabi," were entirely unknown there. The pygmies at Beni, on the contrary, only used the designation "okapi" and "kwapi," and generally knew no other.

At Sindano we were successful in acquiring a skin, in good preservation, with the skeleton complete; also another at Songola, and three more at Irumu. These were the first brought home by any German expedition. I am not aware either of there being any other skull existent in Germany.

Even to-day we know but little of the habits of the okapi. All that has been made known so far is limited to tracking methods. From this we know that the creature finds its way

by night to the watercourses, but remains concealed in shy seclusion during daylight. According to the experiences of Europeans familiar with the Congo, many tracks have been found quite close together, as though produced by the passing of a herd. Although we have not had an opportunity of proving the truth of this statement, it certainly seems that the okapi is not so rare as has been generally accepted, for, as already mentioned, one often comes across girdles made from its hide. Again, the animal is familiar to all the forest dwellers.

The title "kenge" was often also applied to another variety of antelope, which equals the okapi in size. This is the great striped antelope (*Booceros spec.*), which exists throughout the Congo forest. On the eastern edge of the forest it is called "soli," and "bongo" in the Middle and Lower Congo. The buttocks are far less striking than those of the okapi. A further mark of difference is that it bears horns about 50 centimetres in length, which undoubtedly betrays its kinship with the bush-buck. The horns have the same peculiar twist, and are quite of the bush-buck type. The skin is light and covered on the back with a number of uniform white stripes, similar to those of the elephant antelope. Fortune favoured us in this connection, for we managed to obtain a skin and a skeleton from the forest dwellers.

Another pleasant surprise for us was the acquisition of a brown hide, showing a yellow stripe along the back which grows broader from withers to tail; it comes from an animal named "lotzi" by the Wambuba, and "dotzi" by the Wambutti. We were further able to enrich our collections with the hide of a brownish-silver-grey sort of antelope called "sindo" in Kingwana, "haissuku" in Kinande, and a light brown coloured one, the "munso." The two latter belong to the dwarf type. Both were dedicated to a German museum as the first examples of their kind.

A three days' halt in a former pygmy camp resulted in a few specimens of monkeys—after some real hard stalking—and Wiese contributed an elephant which, to judge by its general



OKAPI SKINS
IN THE CENTRE (LEFT) TWO BELTS OF OKAPI HIDE



AN OKAPI SKULL

appearance as well as its tusks, we took to be a dwarfed representative of its class. Dr. Schubotz and I unfortunately only found the spinal column next morning, together with the carefully severed head, as the entire remainder had already found its way into the stomachs of the cunning Wambutti and carriers. The length from the spine to the pelvis was only 112 centimetres, that of the head from the start of the ivory to the occiput 66 centimetres, with a height of 43 centimetres. The measurements of the longest tusk, inclusive of the portion contained in the skull, were 78 centimetres by 23 centimetres thickness at the egress from the skull.

All forest folk differentiate between "small" and "big" elephants, a description on which one can certainly base no conclusions as to age or race. The accuracy of the designation is, however, clearly confirmed by many small tracks found with the large ones. Our lack of time for the further elucidation of this interesting question was all the more regrettable.

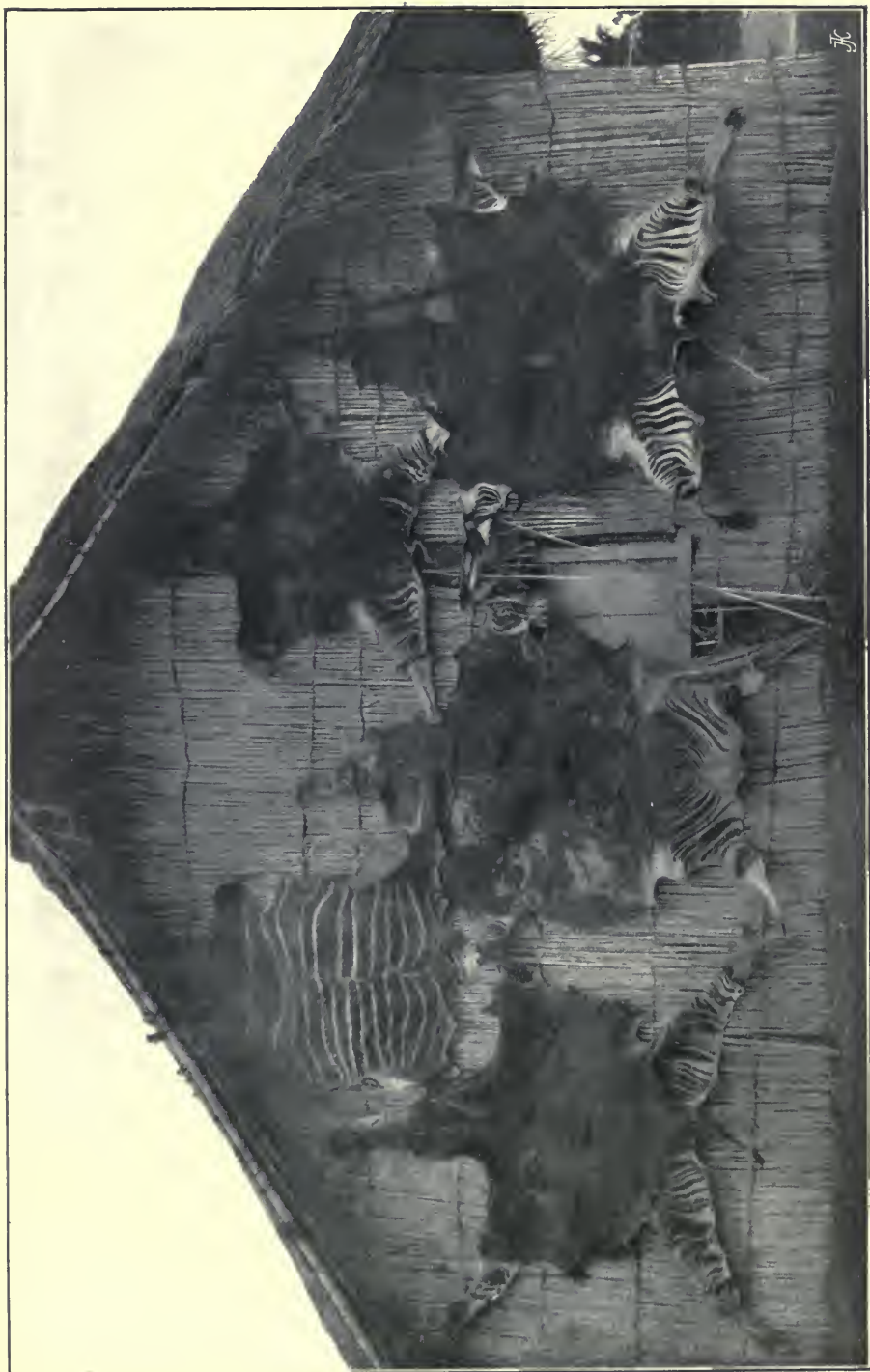
Hopefully as our excursion into the great forest had commenced, and successfully as it had proceeded, it was to end sadly for us. Even at Muera, Weiss had complained of pains in his side. As his condition threatened to become worse, and as he was incapable of walking, he had to be carried back to Beni. He there claimed the help of Dr. Mortula, who quickly diagnosed an abscess on the liver. Weiss, therefore, instead of proceeding with his very successful topographical work, found himself compelled to lie in bed and undergo a severe course of treatment. A few days later I received a letter from Captain Creydt, who had attached himself to Raven's party, telling me that Raven was lying at Kasindi, after having been badly injured by a buffalo. Raven had followed a wounded buffalo into the dense *matete* within five paces, and had suffered such a sudden and surprising attack on the beast's part that it was impossible to avoid it. The enraged animal had got him on his horns and hurled him into the air; then he had rushed at the unconscious man and broken several of his ribs, caused him various flesh wounds, and three times pierced the muscles of his right arm.

His trusty Askari saved him from his critical position by firing a volley into the creature whilst it hung almost over his body. Under the skill and careful nursing of Dr. Mortula the two invalids gradually recovered, but it was quite impossible for them to participate further in the expedition. Accompanied by the doctor, they started on their return to Europe, taking short marches to Entebbe. In spite of his awkward position, lying in a hammock, Weiss contrived to carry out the survey of the road as far as Entebbe.

We now returned by a circuitous route to Beni, where nearly all the Europeans were lying sick. Fever and other disorders had broken out. The non-appearance of the expected rain had a depressing effect, and made the temperature rise to 30 deg. C. in the shade. This heat enervated the patients still further.

Rain was badly required, for its shortage in the previous year had brought about a failure of the harvest and resulted in a famine. The banana fields yielded no results and the potatoes dried up. At the finish the people had to suck bananas in order to alleviate the cravings of extreme thirst. A similar condition of affairs now menaced.

We only stayed a few days at Beni, and then set out for the western slope of the mighty mountain chain of Ruwenzori. On the way we passed broad banana fields, where bird life was so plentiful that we hurriedly pitched camp, so as to seize such a favourable opportunity for collecting. Great hornbills bestirred themselves close to tiny summer birds, weaver birds, "kasukus," and grey parrots, whilst innumerable gaily-feathered singers flitted through the air. Our zeal for collecting was, however, soon arrested by a pelting downpour of rain, which converted the ground almost immediately into torrential brooks or morasses. Although the natives greeted this with joy, we ourselves found it very disagreeable, as the loamy soil promised us an exceedingly arduous march on the slopes of Ruwenzori. Our fear that this downpour was the forerunner of the February rainy season proved correct, and the conditions of our march were essentially unpleasant. In addition to the slippery path,



OKAPI SKINS

which was in evidence as soon as the ascent commenced, there was the *matete* 4 metres in height, which bent its stalks in such a fashion across the narrow way that it was only possible to advance as if crawling through a tunnel. Thus the chopping knives had in the first instance to hack a way for the loads which followed, a work which retarded us so long that we only traversed 10 kilometres in five hours. We went at it random fashion, hoping that the road taken would lead us to some favourable camping site. We had not been fortunate enough to secure a guide. All the plantations were deserted, the villages empty.

Finally we accidentally surprised a man in a clearing, who, his face distorted with fear, was in the act of vanishing into the tall grass. Asked the reason of his fear and that of his fellows, he affirmed that our shots of the previous day had induced the belief in the people that the "whites" had come to do battle. The timidity of the population arose from the fact that this district had very rarely been visited by Europeans, as most of the expeditions to the mountains had started out from the east, with Fort Portal as their base. Thus the natives had had no opportunity of convincing themselves of the peaceable intentions of their European visitors. Stories circulated by the insubordinate and so far unsubjugated chiefs of the mountains had no doubt helped to increase their fears. Won over by a few presents, the man at last consented to act as our guide, and accompanied us some distance through the Butagu valley. We halted at an altitude of 1,500 metres. Splendid wine-palms, bearing enormous blossoms, with fronds 10 metres in length, waved in the air and shaded our tents.

The ascent, which had been planned for the next morning, had to be postponed, as the whole neighbourhood was shrouded in mist, and streaming rain blotted out the landscape. I thus expressed our mood in my diary:

"A rainy, hopeless-looking day, forbidding an ascent! Everyone in his tent, reading, writing, or trying somehow to while away the time. Torrents of rain pouring down the moun-

tain, furrowing deep channels in the ground, and turning the soil into ankle-deep mud which, of course, is carried by us in cakes into our tents. Nothing dries; clothes and boots will need several days to get right again, and will even then have to be drawn on damp. The men are freezing. Our baggage is being damaged, the photographic apparatus especially. Our guns have to be submitted to a permanent oil bath, so as not to rust entirely, and to be ready for use. The zoological and botanical collections are in a bad way. As they cannot dry, they are easily exposed to the danger of rotting. With a heavy heart we have thrown away many a bird skin, many a plant specimen which have become worthless. The temperature is cool—15 deg. C. both yesterday and to-day. These are the afflictions of the rainy season, which, for the second time already, we are tasting."

At Muera's village the two biologists parted from us, as they I will here set down some general remarks concerning the geology of Ruwenzori, which are culled almost verbatim from the Duke d'Abruzzi's book. Our geologist, Kirschstein, was not privileged to visit this mountain range. Ruwenzori stands, so to speak, like a mighty projecting corner tower in the wall of the eastern border of the Central African rift-valley. It is certain that Ruwenzori is not a volcano, as was assumed by Stanley. It is a serrated range, consisting of gneiss as well as micaceous slate. Beginning at an altitude of some 4,000 metres, its highest summits are mostly formed of aphanite. In this respect it differs from all other mountains in Equatorial Africa, which tower up to Alpine heights. With the exception of the Aberdare Chain, which rises to a height of 4,270 metres, they are all volcanoes—Kilimandscharo 6,010, Meru 4,730, Kenia 5,600, Elgon 4,230, the Kiwu volcanoes 4,500 metres, and the Cameroon mountains 4,070 metres. As far as snowfields and glaciers are concerned, there is nothing in the whole of Africa which can compare with Ruwenzori. Six summits of the whole group, which have been named by the Duke d'Abruzzi after celebrated Central African explorers, are covered with perpetual snow. From north to south

they run as follows: Gessi 4,769, Emin 4,815, Speke 4,901, Stanley 5,125, Baker 4,875, Ludwig of Savoy 4,663 metres. The Ruwenzori glaciers are included among the so-called equatorial type; that is to say, they form a kind of ice-cap, at times of great dimensions, and more or less entirely cover the summits of the mountains. From the caps, branches stretch out down below, which enter the valleys and only rarely extend beyond the lower boundary of the perpetual snow, which lies between 4,450 and 4,500 metres. In consequence of the position of the glaciers, the moraines at the sides are quite inconsiderable, and even the ground moraines do not appear to possess any noteworthy development, at least, judging by the terminal moraines, which never exhibited any important feature.

Another circumstance worthy of notice is that the water which spurts out from the fore part of the glacier never has that dull appearance which the melted snow of the Alpine glaciers exhibits under similar conditions. The water is perfectly clear, which proves that the progress of the glaciers, at the present time, at least, is quite inconsiderable. The erosion also must be very slight, which will account for the absence of ground moraines.

The tremendous development which the glaciers of the Ruwenzori group underwent during the glacial period is a geological phenomenon of great importance. We learned from the investigations of Dr. Roccati, the geologist to the Duke d'Abruzzi's expedition, that they have extended down to 1,500 metres on the eastern side in the Mobuku valley, whilst now they are no lower than 4,200 metres!

I would particularly desire to emphasise these statements. If we really may accept such a glacial period for Equatorial Africa, which observations on the Kenia would tend to prove, many questions of a botanical and animal geographical nature would easily be solved. The almost bewildering conformity which is exhibited in the vegetation of mountains which are now divided by broad steppes or forest regions of purely tropical character, and in such types that their dissemination through birds or the air is not to be thought of, would then be explained.

As we wished to commence the march to the Congo on the 1st of April from Irumu, and had meanwhile to get through an extensive programme, time began to press. Lieutenant von Wiese and I, therefore, had to leave the further ascent of the mountain, as well as the biological investigations, to the botanist and the zoologist alone, or the unfavourable climatic conditions prevailing might have still further delayed us. After touching at Lake Albert, I was specially keen on visiting Kilo, the auriferous, so we bade good-bye to our fellow-travellers and settled to meet again at Irumu at the end of March.

Mildbraed reports as follows on the advance through the valley of the Butagu :

"On the morning of the 11th of February, Schubotz and I separated from the Duke and Lieutenant von Wiese, accompanied by their best wishes, which savoured somewhat of sarcasm, considering the atrocious weather of the past few days. Things looked far from encouraging when we set out ; it was a dismal, gloomy day, but, at least, it was not raining. We entered the valley of the Butagu, possibly the largest stream on the western side of the mountain, and which bears the glacial waters of the highest snow mountains in the group,* to the Semliki. We pursued almost the identical route that Stuhlmann took in June, 1891. It leads along the Butagu valley at a considerable elevation above the brook, which can only now and then be descried, up and down over the small streams which pour from the sides of the mountains situated to the north of the main valley.

"Elephant grass (*Pennisetum cf. Benthami*), with stalks the thickness of a man's thumb, and four to five metres high, bordered the first stages of the narrow path. It is extremely unpleasant to march through *matete* of this description, for the massive stalks frequently choke the way and have to be hewn

* The Duke d'Abruzzi assumes that the waters of the glaciers to the "west of the Ludwig of Savoy, the Baker, the Stanley, the main portion of the Speke glaciers and of the Emin" collect in the Butagu ; the two last mountains, however, do not come into consideration. The stream denoted in the plan of the Ruwenzori chain by a dotted line does not flow into the Butagu.



SCENE AT THE BASE OF THE RUWENZORI MOUNTAINS

away with choppers. Broad leaves with sharp edges cut into hands and face, and incessant endeavours to protect one's eyes finally produce a feeling of intense nervousness. In addition to this, there was the heavy, moist air under the tall, soaking trees. At times this grassy wilderness was broken by immense fronds of isolated wine-palms, resting on short stems, or by banana fields and small cultivated plots. Later on the elephant-grass was relieved by plots of brake-fern, as tall as a man, which certainly reminded one of home, but were not pleasant to negotiate. Strips of woodland, however, which interspersed the scenery here and there, and in which splendid tree-ferns spread their mighty yet graceful fronds across the murmuring waters afforded a welcome change. The steep, slippery path through these deeply-indented side valleys was torture at times for the carriers, and we were often very much concerned for our still more sensitive collections.

"At last, at a bend of the way, we espied a small settlement in the distance, Kakalonge, set on the ridge of a hill which slopes gently from the higher mountains down to the Butagu, which, with its few round huts and cultivated plots, wore a friendly and inviting aspect.

"Here, after a really exhausting day for the carriers, we pitched our camp at an altitude of about 2,200 metres. The landscape already exhibited the sublimity of Alpine regions, although, thus far, the loftiest splendours were still concealed from our view. Right before us, across the rushing Butagu in the depths below, we gazed on the Wawunga mountains rising aloft like a gigantic wall, which accompany the main valley to the south. Lower down, the steep slopes were still dotted with single huts and small cultivated spots, as well as numerous wild banana trees, whose light green colour formed a bright spot; farther up woods covered the mountain sides.

"The vegetation in the vicinity of our camp was in the main of a secondary character, a mixture of brake-fern and all kinds of shrubs, bushes and plants, amongst which the beautiful big vernonia, with large white or pale lilac corymbus, and the

tall *Lobelia giberroa* Hemsl., were particularly noticeable. The *Cynoglossum* family, with their cerulean flowers, which were vividly reminiscent of forget-me-nots (they are so called in Stuhlmann's report), were very prevalent, and also yellow everlasting, with large and small heads, plants which are met with everywhere in the lower mountain region. A little farther up there was bamboo, amongst which the fine big sapotaceous tree of the Bugoie forest, the 'mutoie' (*Sideroxylon Adolphi Friederici* Engl.), was to be met with.

"On the evening of this day we discussed the question of how we should continue the advance. The Congolese had first promised us as guide a white non-commissioned officer, who had once escorted a Belgian officer as far as the snow; then it was to have been a black sergeant, who had made the same excursion, but they had left us beautifully in the lurch. As a whole, the route had been sketched out for us, but as to the details regarding favourable division of marches, possibilities of encampment and of finding water, etc., we knew nothing. In any case, we wished to establish a fixed camp, and as we had descried, at no great distance, a thick, finely-grown forest, we decided to march thither the next morning and pitch a camp to serve as a centre to our collecting expeditions. The path first led into a deep, cleft-like valley, through which a spring of crystal-clear, ice-cold water flowed. Then for a time we had to climb up again steeply, and came upon a clearing, luxuriant with plants and bushes, passably level, which appeared to be extremely suitable for our purpose.

"We found ourselves now on the lower part of a long ridge-like stretch of mountain, which led up to great heights by a fairly regular gradient, and which Stuhlmann had also climbed. As it was still early in the day, Schubotz and I, in order to take our bearings, went up on the crest to which a very narrow but tolerably good path led us. Through mixed growths of thickly-foliaged timber and bamboo, at an altitude of about 3,000 metres, we reached the 'sub-alpine' region of the *ericaceæ*, which, similarly to the 'alpine' formation of the tree-like



BLOOM OF THE RAPHIA (WINE PALM)
(DR. MILDBRAED)



MOUNT STANLEY OF THE RUWENZORI RANGE, FROM THE WEST

senecio and stalk lobelia, nowhere in the African alps attains so prodigious a development as on Ruwenzori.

"On our way the vegetation was formed chiefly of *Erica arborea*. The younger specimens are almost like juniper shrubs; the older are tree-like, four metres or more high, with knotted stems and very bent and twisted boughs, which bear at their ends, in small, compact masses, the tiny-leaved, deep blue blooms. The stems and boughs are thickly covered with cushions of mosses and liverwort, and big, flabby, jelly-like patches of tree-moss, also the long, grey beard-moss of the *Usnea* family. The whole effect, especially when mists are gathering, gives a very weird and unsubstantial impression, as of a home of spectral hobgoblins and mountain gnomes. The ground is covered with thick carpets of swamp-moss, numerous *hepatica*, and an exquisite feathered moss, the *Breutelia Stuhlmanni*. The masses of sphagnum are so wet that they look like fully-saturated sponges. Among the *ericaceæ* are the shrubs or small trees of *Rapanea pellucidostriata* Gilg., *Olinia macrophylla* Gilg., and the striking but somewhat rare *Vaccinium Stanleyi* Schwfh., an African bilberry, whose fruit is very similar to the European variety. I had already come across it on Sabinjo amongst the volcanoes. In addition to the splendid bushes of big, beautiful everlasting *Helichrysum formosissimum*, two orchids are especially noteworthy, *Satyrium crassicaule*, with pale pink, and *Disa Stairsii*, with dark rose red or purple blooms, fine plants which are met with on the volcanoes, and are reminiscent of many species of orchids of our meadows.

"Climbing on in the *ericaceæ* region, we came upon an old camping place, which we thought of naming our 'lower Belgian camp.' We did not learn much by our advance, for we were unable that day to see the higher mountains; we only discovered that we should have to progress along the same ridge over several summits, and learnt from natives that higher up there was supposed to be another 'Belgian camp.'

"Should we shift our camp higher up? It would have been simply impossible to wind our way through the dense *ericaceæ*

scrub with the big caravan and bulky, heavy tent loads. We should also have been compelled to carry water with us, as none was to be had on the ridge, and, in addition, a halt of any duration at an elevation of 3,000 metres would have been nearly torture to the carriers, who are peculiarly sensitive to the damp cold and mist. We remained, therefore, where we were, and utilised one day to explore the near vicinity of the camp; on the next we proposed to push forward again and see how far we could get with two natives and a few of our followers who always accompanied us on smaller excursions. We climbed up to a crest above the 'lower Belgian camp.' Then Schubotz turned back, as the weather had grown very murky. I now climbed on up a hill lying before us, which formed the most disagreeable part of the journey. It was manifestly the same spot at which Stuhlmann on his memorable climb had left his tents and all heavier loads under the charge of the famous Uledi. Here the *ericaceæ* formed a veritable forest. The trees attained an average height of 6 to 7 metres, and frequently 30 centimetres in diameter. The slope of the hill itself was pretty steep, but the worst was that everywhere fallen *ericaceæ* were lying around. The whole place was overrun with luxuriant flora (balsamines and mimulopsis), and mosses dripping with moisture, so that it was impossible to see where I was going, and I often sank up to my waist in some concealed hole or other. Even when this hill was surmounted, things did not go much better. The big trees and the steepness of the way ceased, but in their stead the vegetation consisted of *ericaceæ* shrubs of juniper-like growth (*Philippia longifolia* Engl., *n. sp.*), which were very dense, so that we had all we could do to push through it. The weather was so thick that we could only see a few metres ahead; the path, however, could still be discerned. Here, too, we found the so-called 'upper Belgian camp.' Then we came to a small mountain stream in a light depression which divides the long mountain ridge on which we had climbed from Mount Ulimbi. The *ericaceæ* shrub ended and the fine alpine flora of Ruwenzori commenced with the two tree-like senecio, *S. Johnstonii* and

S. adnivalis, the stalked lobelia of the lofty regions, *Lobelia Wollastonii*, and the splendid bushes of *Helichrysum Stuhlmanii*, with silver white or slightly yellow everlasting heads, whilst the ground was covered with a carpet of *alchemilla*, dwarf shrubs and mosses. Beautiful *Nectarina Johnstonii*, a colibri genus, the males of which are magnificently coloured, were flying round the lobelia stems in pairs. Their body colour is almost black, whilst their pinions and head are an iridescent emerald green. Their most conspicuous adornments, however, are two lengthened middle tail feathers, which flutter streamer-like in flight. It is charming to observe the doings of these devoted couples in these inhospitable heights; how they fly in bow-like circuits from one plant to another, or flit about here and there on the big branches, digging their delicately bent beaks into flowers to obtain insects, whereby they effect pollenisation at the same time.

"That day everything appeared grey and obscured through a misty veil of fog and rain; the weather had been growing steadily worse, and such severe, damp cold prevailed that my hands had become quite numbed. Except for a leathern jacket, which only kept the upper portion of my body dry, I could not have advanced so far. As the fog prevented any view, and it was already two o'clock, I turned back, although the guide urged me on, addressing me vociferously; but I only understood the words 'chupa' (bottle) and 'matabisch' (for baksheesh). I learned later that he feared he would lose his baksheesh if he did not show me the bottle on Ulimbi which served as 'visitor's book.'

"Next day brought glorious weather with warm sunshine, so that in our encampment, about 2,400 metres above the sea-level, we were able to work at our collections in our shirt sleeves. Our drooping spirits revived, and I decided to make another attempt at an ascent on the following Sunday, the 16th of February. As my constant follower, Maneno, and another, had not proved good mountaineers on the 14th, and had been left wailing and freezing on the way under an erica bush, I gave up any hope of relying on my own people, and selected three quite wild natives, with whom it was only possible to carry on very imperfect com-

munication by signs and grunts, and when it came to the worst I used the magic word 'matabisch.' I equipped them with small rifles (for the *nectariniidæ*), breakfast, and a case for the plants, and marched out at six o'clock. I really had intended to start earlier, but my three savages had not turned up. At five o'clock I watched the moon sinking over the Semliki plain, and, smoking a morning cigar, I gazed on the awakening of a new day, which broke in wonderful clearness. The sun was still below the horizon and it would take another good hour before it would be able to peep over Ruwenzori into our camps; but the Wawunga mountains were already looming up like blue silhouettes against the clear sky, and opposite to them the bolder outline of the ridge which bounds the Butagu valley in the north.

"We started out in the clear light of the dawn. On reaching the 'lower Belgian camp' we could see, away over the ridges, the white, snow-capped heads which had appeared so gigantic in the fog previously, and from the upper camp I soon saw that all difficulties were overcome and that I had been quite close to the goal on the cold, misty day when I first attempted the climb. Ulimbi rose gently up covered with mosses and grey *alchemilla*, and at intervals grew senecio trees, stalk lobelias, helichrysum bushes, and shrubs of *Hypericum keniense*, radiant in the warm sunshine, although frost still lay in shady places. Up we went, leisurely ascending almost imperceptibly to the edge of the plateau; and then a spectacle of such grandeur confronted us that words fail to picture it. The cliff fell down precipitously to the dark surface of a dammed lake, and opposite rose wild, black and jagged walls of rock, between which the glaciers glimmered blue, torrents rushed down from the dazzling snow lines of three kingly heads, where silence reigned supreme.

"We proceeded along the edge of Ulimbi to the 'chupa,' the bottle which serves as visitors' book, an object which will doubtless not long be wanting on any African alp (on Ninagongo there must have been a good dozen). Unfortunately I had to break it, as it was impossible to pull the paper out; Schubotz

replaced it the next day with another. It proved, as we already were aware, that in 1906 a Belgian officer named Bogaerts and a non-commissioned officer, Joissan, had been there, and, what we did not know, that on the 14th of December, 1907, Mr. J. S. Coates, of the Anglo-Belgian Boundary Commission, had 'drunk to the health of his predecessors.' Now I understood why the so-called 'Belgian camp' had looked so fresh. In passing, just a hint for those desiring to record their visit in bottle form at other spots: Take a slip of paper, not too large, and roll it so that the writing is on the outside, and place it in the neck of the bottle with the writing against the glass, so that it can be easily read by all who may come after.

"It was time to return, but I had good reason to feel satisfied, for, favoured by a radiantly sunny day—a great rarity on Ruwenzori—I had seen everything that I could under such conditions. I had enjoyed a clear view of the mightiest peak of the group, Mount Stanley, and had at least obtained some conception of the snows and wildness of its glaciers. The huge sentinels crowning the highest ridges particularly attracted my attention, with their colossal icicles hanging down from jagged rocks and ice blocks, or leaning against them like columns. They are, doubtless, the result of powerful sun effects alternating with long, cold nights. Unfortunately I was not privileged to get as far as the glaciers, as the deep cleft in which the lake lay was unsurpassable from this direction. If I had decided to make a circuit, it would have necessitated my encamping on Ulimbi, and our equipment was not adequate for that. First and foremost we possessed no so-called 'patrol-tents' and sleeping bags, not to mention any Alpine tourist kit, ice-axes, ropes, etc.

"It appears to me that the route through the Butagu valley is very well adapted for attaining the highest summit of Mount Stanley. In the first place, it is not necessary to traverse any of the swampy valleys of which the Duke d'Abruzzi complains so much. Up to our fixed camp, direct north-east of the junction of the three great streams, there is still cultivated country, and

thence with small loads and more carriers one can get on to the long ridge by a very gradual ascent, apart from the one awkward place mentioned, and on up to Ulimbi, although it certainly would mean a very strenuous day. Then one should not, as Stuhlmann proposes, descend to the lake, but make a detour of the deep breach to the north, arriving in due course at the snows of Mount Stanley. The great advantage of this route would lie particularly in the fact that, before the actual Alpine ascent, there would be no climbing and clambering of much account, and that in clear weather the way could be seen far ahead and the whole surroundings overlooked. *Vivat sequens!*

"Shortly after two o'clock I started on the return journey, and was back in camp soon after sunset. My inspired description resulted in Schubotz ascending Ulimbi on the next day. He was successful, too, in obtaining a few photographs. In the meanwhile I busied myself with the collections and completed them in the forest in the vicinity of the camp.

"This forest is not equal in beauty to the Rugege, and it lacks such immense tree giants as the podocarpus and 'mutoie,' found in the Bugoie district. Bamboo stocks of *Arundinaria alpina* are interspersed with foliates. The principal trees are: *Dombeya leucoderma* K. Schum., *Sideroxylon Adolphi Friederici* Engl., *Olea chrysophylla* Lam., and *Olea Hochstetteri* Bak., *Mystroxylum aethiopicum* (Thunbg.) Loes., *Pygeum africanum* Hook. f., *Allophylus abyssinicus* (Hochst.) Radlk., *Alanginum begoniifolium* (Roxb.), Harms., *Pittosporum fragrantissimum* Engl., *Rhamnus prinoides* L'Herit., *Maesa Mildbraedii* Gilg., *Persama spec.* The *Macaranga kilimandscharica* and *Polyscias polybotrya*, so frequent in the Rugege and Bugoie forests, I only found in the rather denser forest ranges.

"On the day following Schubotz's ascent we marched back through the Butagu valley, and on to Beni. Schubotz had originally intended to proceed along the foot of Ruwenzori like the Duke and Wiese, but abandoned the intention on receiving a letter from Wiese informing him that the road was so bad that

he had much better proceed from Beni to Mboga. We arrived at Beni again on the 23rd of February.

"From there Schubotz left for Lake Albert whilst I and our non-commissioned officer, Czczatka, took the nearest way to Irumu. I selected that route as, except for a short distance before reaching Irumu, it leads through the easternmost portion of the great equatorial primeval forest, in the study of which I was deeply interested. Our march offered no further noteworthy episodes as we made our way along the broad *barrabarra*. Shortly before reaching Ngombe Njama we emerged from the stifling forest and breathed again as though freed from an oppressive weight, as our eyes swept once more across the free, beautiful, undulating steppe, resplendent in its garb of fresh green, and dotted at intervals with strips of woodland."

I may speedily pass over the marches that led us through the country at the foot of the mountain chain, as it was devoid of charm and presented nothing of interest. Tall elephant grass, radiating terrible heat, again retarded our march. The chopping knife had to cut a path through for us every day. This painful method of progression was, however, relieved in the Butalinga district by innumerable ravines about a kilometre in width, on the bottom of which extensive banana plantations were found; but climbing through these was a severe tax on the power of the carriers.

The path we struck was the old Stanley route. It seemed to us as though very little could have altered since the time of the great traveller. After a night march in full moonlight we reached Lepenge on the Semliki, which we immediately crossed. The few variations from the general monotony at this time, and not particularly enjoyable ones either, were a wound on my hand from an axe-stroke, really intended for a liane, which necessitated my going with my arm in a sling for a week; the falling of Vêriter into an elephant pit, whereby he was somewhat severely hurt; and finally the disappearance of our two guides, whom it had cost us considerable trouble to obtain. The terri-

tory to the west of Ruwenzori is reserved, and the capture and the killing of elephants forbidden. Thus the discovery of this nicely-arranged pit was a disagreeable incident for our two fine fellows. Anticipating certain punishment, they thought their best course would be to take French leave, and perhaps they were right.

After another two days we reached the market-place of Mboga. This very lively station is situated in disputed territory, that is in a strip of country divided by the 30 meridian, the incorporation of which was not at that time definitely settled. The neutrality and commercial freedom which ruled in consequence had not escaped the attention of the Indians and Arabians, who conducted a large number of stores there. Everything the heart of man coveted could be obtained at these "stores," and we ourselves did not let the opportunity pass by without replenishing our stocks of barter goods, preserved fruits, etc. Our carriers were jubilant, and fancied themselves in spirit in the busy life of their native cities Muanza and Daressalam. These innocent-looking shops also supplied goods to the two Boundary Commissions which had their quarters near at hand; but in reality they were the secret centres of a lively smuggling trade in ivory and rubber carried on in the most public manner. These two products were calmly borne along the street with the greatest audacity. Inquiries as to their place of origin were answered with a jerk of the chin in the direction of the vast primeval forest. The cunning dealer has his own private path, known only to himself, and hidden to the uninitiated. These paths are found by the blazing of branches, the strewing of leaves, and a hundred other signs. Many thousands of pounds of rubber and thousands of valuable elephant tusks are lost annually to the Congo State, despite the strictest supervision possible in the circumstances. Every means at the disposal of the Government are pressed into service to get rid of the sharks who rob the State of thousands of pounds.

Our arrival was announced by letter to the two commissions. Shortly afterwards Lieutenant Vangermais paid us a visit and

invited us to Kiagodé, the Belgian camp about one and a half hours' distant. On the next day we made the acquaintance of Lieutenant Weber and the courteous commander of the commission, M. Bastien, who had been staying at the English camp on the Semliki, but who had hurried back on hearing of our arrival. We stayed there for a few days in most agreeable company, and had every attention lavished on us. All our desires were complied with immediately.

The camp, which was situated at a high altitude and fanned by refreshing breezes, consisted of roomy *matete* dwellings, and was in the province of the young chief Tabaru. An opportunity of exchanging greetings with him occurred on the day that we arrived, for he met us on the boundary of his territory.

As we intended to visit the British Commission working in British territory on the Semliki, we left the Congo State for a short period. The Russisi-Kiwu zone was the point of departure, and there we bade farewell to Vériter, who returned to Rutschuru. For four months he had shared the pleasures and difficulties of the expedition, unselfishly furthering our interests, and endearing himself to us all; and his departure left a very considerable gap in our circle.

We started early on the 23rd of February, accompanied by Commandant Bastien, and arrived in a few hours at the watershed that divides the basins of the Nile and Congo. My amiable host left me there, and I rode forward alone with Wiese. We soon reached the edge of the mountains which bound the Semliki plain, and began to descend the steep road to the river. The difference between the oppressive heat there and the cool freshness of Kiagodé was most marked.

The immense plain, which was very sparsely vegetated, was alive with game. Moor antelopes and reed-bucks, detached or in herds, gazed across at us. At noon of the 24th we espied the extensive British encampment, and only a short time elapsed before we were shaking hands with Colonel Bright and the officers of his staff, who received us at the head of their military force.

Here, likewise, every wish that we expressed was courteously acceded to, and valuable information of all kinds imparted.

The sudden change from the oppressive heat to a cool temperature had affected Wiese's health. Consequently we claimed our hosts' hospitality for a day longer than we had intended, and then set out northwards towards Lake Albert, following the course of the Semliki. The river flows sluggishly, growing broader and then narrower again. Hippopotamus heads popped up here and there from the yellow waters, and on the sandy banks dozens of crocodiles sunned themselves; motionless, with gaping jaws, they formed a typical picture of indolence. Isolated borassus palms raised their curled heads aloft, their slender stems being mirrored on the water's surface as though conscious of their beauty. With their sandy surroundings they conjured up pictures and memories of Egypt. Detached villages dotted on the landscape here and there lent animation to the scene, although they appeared to be sparsely inhabited. Our thermometer registered 40 degrees Celsius when we pitched our tents in the neighbourhood of the bed of the Ethengi.

A few days later we reached the western marginal mountain of the rift-valley. On our right the plain gradually merged into a sea of reeds stretching on for an illimitable distance. With the aid of our glasses we descried in the distance the grey backs of elephants comfortably sunning themselves, although the shimmering waves of hot air rendered clear outlines almost impossible. At length we chanced on a small wood that promised cool, refreshing shade. On entering its inviting retreat there was commotion in the foliage, and crowds of monkeys, including beautiful specimens of the colobus, with long white-haired backs, sprang from tree to tree reviling us.

Our camp was erected at Boguma, close to crumbling, thatched huts which gave evidence of the activity of the British Boundary Commission. Unfortunately the trees around had been stripped of their leaves by the elephants to a height of many metres, and there was a struggle to reach those that held out the greatest promise of shade for our tents.

I climbed on to a small plateau close to our camp, and from this coign of vantage my eyes roved over the incomparable panorama of an almost limitless plain. Expanses of reed-grass alternated with patches of elephant-grass, barren steppes and trees. The glistening waters of the Semliki completed a fine picture. In the far distance diminutive specks could be seen moving slowly hither and thither, and we knew them to be the slender bodies of antelopes. The sun poured down its fierce rays on us with terrible force. Standing there, lost in thought and gazing at the marvellous prospect, I heard sounds of lamentation behind me. Turning round I beheld my boy executing a lively Indian dance and hopping about from one foot to the other.

"What are you doing?" I asked laughingly.

"Master, the stones are so hot that my feet are being burnt," was the reply.

Putting my own hand on the rocks to test the assertion, I was compelled to withdraw it immediately for pain. A blister that instantly formed convinced me that my boy had not complained without cause.

In close proximity to our small camp we saw some dozen crocodiles basking on a sandbank. We made up our minds to kill some of these hated enemies of man which considerably heighten the mortality of the native races. First, however, I determined to utilise them as a welcome subject for my camera. Accompanied by Weidemann I crawled snake-like along the ground. At a distance of about 100 metres I raised the camera very carefully above the grass and "clicked." The slight sound, however, sufficed to create a certain uneasiness among some of the animals. So, lying on the ground, I hurriedly changed the plates and took a second snap-shot. The renewed sound caused one of the reptiles to draw near the water and others prepared to follow. Then I jumped up and shot six of them one after the other; four remained dead on the banks, whilst the other two, bleeding badly, rolled over into the water. The scene was an animated one; the animals tumbled over each other in their

hurry to hide their huge, ugly bodies in the water, which splashed and foamed as though it were boiling. We were able to repeat our adventure successfully on the next day, as Wiese's indisposition made it necessary to halt at the spot for a little time. On opening the stomach of one of the reptiles we were surprised to find it filled with an immense quantity of stones.

We reached the southern end of Lake Albert on the 1st of March, having espied the glittering surface of its waters in the distance on the previous day. On our way we passed an elephant standing isolated in the reed-grass, surrounded by a number of natives, who evidently thought of killing the beast. Our caravan was halted in order to watch the interesting spectacle, but as the hunters seemed unable to make up their minds to commence the attack, we approached with the camera and took a few photographs.

The water of Lake Albert is clearer than that of the turbid, loamy Lake Albert Edward. At Kassenje, where we halted, the mountain ridges are some 10 kilometres distant from the banks and run parallel with it. The lake's banks at Kassenje are free of reeds and only covered with rushes. Here Schubotz found a mass of moss animalcula (bryozoön). Dredgings yielded spoils of snails and shells. The plankton consisted mainly of daphniadæ and copepoda. The lake was notably rich in shad, whilst carp appeared to be entirely absent.

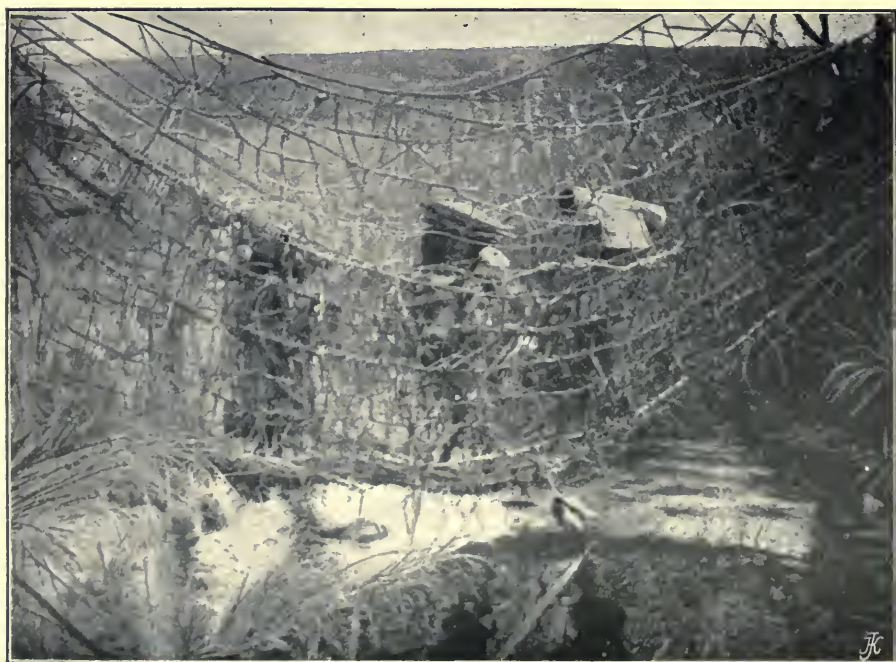
This lake is far less rich, from the naturalist's point of view, than Lake Albert Edward. Hippopotami and crocodiles are encountered chiefly at the estuaries of the rivers that flow into it, and ornithology is but poorly represented.

We made the acquaintance at Kassenje of the young chief, Dedoye, a son of Kawalli, at whose residence Stanley met Emin Pasha in 1884. Stanley's old camp was only two hours distant; the boundaries near Nsabe are stated to be still distinguishable. Dedoye remembered "Bulamatari" well. As a small boy he and his father had often spent days in company with Emin and Stanley.

The name "Bulamatari," or "Rock-blaster," by which Stanley



A HUT FRAME AT BAWIRA



A HANGING BRIDGE

was known amongst the natives, is still maintained to the present day throughout the Congo territory. Europeans who by their prominence specially impress the inhabitants are designated "Bulamātari." The governor and the heads of districts are frequently given this name; I myself was honoured with it at times.

As little could be done in the way of enriching our collections at this lake, we left again very shortly, taking a westerly direction. After a march of two and a half hours we arrived at the foot of the mountains, having passed through a park-like, extensive steppe, thickly grown with euphorbia. The sun poured down unmercifully on the caravan, and thus made the ascent a torture. The stony parts were so hot that, if the carriers halted, the soles of their naked feet were burnt. At length we reached a mountain brook, clear and cool, and the entire caravan plunged into it without hesitation. Even the dogs jumped in with great eagerness. The camp was pitched without delay. As the sun sank, a beautifully refreshing breeze swept across the slopes, and our thermometer sank to 21 degrees Celsius. We breathed new life again. The heat had exercised a most enervating influence upon us, and our sleep had been of a broken nature, as we were continually waking bathed in perspiration.

The next morning, which was cool and overcast, saw us on our way to the ridge. Before us lay a wide, extensive plain, whilst behind us the sun pierced its way gradually through the mist. Lake Albert disappeared by degrees behind the mountain tops, and we lost sight of the Central African rift-valley for ever.

The strips of country we hurriedly traversed during the days following were reminiscent of Ruanda, and were populated by Bawira and Bawisha. The undulating land is poor in timber and sparsely sprinkled with *mtama* fields; game is entirely lacking. The nearer we approached the mountain dividing us from Kilo the more thickly inhabited became the country, and, naturally, the settlements increased too. The villages of the Bawira were striking in appearance and were erected in a circular form

around an open space. In some of the villages I counted forty huts, in front of which the men and women were idly squatting. Their clothing is of a most primitive description, the men wearing an almost invisible loin cloth, whilst the women have only a narrow string of beads round their hips for adornment. Large, flat wooden discs pierce their upper lips, and give the women a most peculiar appearance. This extremely strange custom is said to date back to slave-driving times, when women who were thus disfigured were spared by the cruel Arabs as worthless for slaves. Plausible as this supposition may appear, it requires proof. For the present it can only be regarded as a mere assertion. The cultivation of bananas and *bataten* (sweet potatoes) was prodigious, and rich harvests lay in the villages. We received a whole armful of potatoes for an old bottle.

At Bunya, a small military station, which, like all such places, consisted of a few huts and a store-house for Europeans, Lieutenant Boyton reported himself. Boyton, who was a Swedish officer, and afterwards in the Congolese service for some years, had been ordered to accompany us in place of Lieutenant Vêriter, who had been recalled.

We now wended our steps towards the heights through the Bawisha and Bakumu country, past the stations of Quadingo and Kitambala. Just before reaching the latter place the narrow path widened out into a small, well-kept *barrabarra*, which owes its existence to the skill of a Belgian engineer and had only been completed a few months. This road led from Kilo to Mahagi, the sole Belgian outpost on Lake Albert, and had been constructed with a view to subsequent automobile traffic. It, however, proved itself unserviceable, on account of sinking subsoil, and had to be abandoned. In its place the Congo Government has decided to construct a great automobile route from Kilo to Nsabe, on the western shores of Lake Albert. This road is to be made from a point lying opposite to Nsabe, on the eastern bank of the lake in British territory, on to Entebbe. As a matter of fact, the first 130 miles were finished in the spring of 1909. The Mombasa-Entebbe-Kilo stretch of road will be made negoti-



AN AURIFEROUS CREEK, KILO

able in fourteen days. The spirit of enterprise evinced in this great work is all the more admirable when the tremendous obstacles offered by the nature of the ground to be traversed are taken into consideration. The region between Kilo and Nsabe is an undulating country intersected by gullies, and its elevations in the neighbourhood of Kilo attain a height of 1,600 metres, whilst the western ridges descend steeply to the banks of the lake. From the long mountain ridges one can see the thatched houses of the town, the environs of which abound with unalloyed gold.

The discovery of this rich and unsuspected treasure is of comparatively recent date. The Congo State is indebted for the find to Hannam, a prospector, who discovered many other copper and gold veins, and who, in consequence, enjoys great popularity and esteem. The workings were taken up on Hannam's advice. Brisk activity soon developed itself, and in the brief space of one and a half years the silent valleys of the primeval forest became busy hives of industry. Engineers and prospectors flocked there, and made rich auriferous finds in the creeks and valleys around. A busy mining industry is now carried on, and in 1908 there were twenty-one engineers and prospectors hard at work near Kilo. The majority were Austrians, familiar with nearly all the important mines on the globe. Mr. Mertens, who bore the title "*Représentant de la fondation de la couronne*," officiated as director, and had charge of all correspondence. At that time the pay-sheets showed a total of eight hundred workers.

The chief wealth of the soil consists of alluvial gold, which is found all over the district at the very small depth of from 1-50 metres on the bed of the creeks. This fact is of extreme value to the industry, as it saves the acquisition of costly machinery and permits the construction of sluices, which are worked by negro labour. These sluices consist of wooden troughs, similar to those in cottage mills, and are furnished with bottom boards. The auriferous soil is shovelled into these troughs, and a constant flow of water gradually washes away

the stones, sand, etc., whilst the gold sinks to the bottom, in consequence of its specific gravity, and settles in the clefts and crevices of the boards. Pieces are found of the size of a pea or bean intermingled with granular gold, whilst the lighter refined gold flows on with the sand and is caught on the table at the foot of the sluice (a square board in which a number of hollows have been made). The biggest nugget found up to the middle of 1909 had the very respectable weight of 300 grammes, and another weighed 150 grammes.

When we visited the place five "champtiers"* were in operation, on each of which a sluice was kept going. Probably this number has been increased since then. The sluice gold is collected once a month, the amount, of course, varying according to the richness of the creek.

The gross amount taken monthly at Kilo when we were there came to about 30-35 kilograms, valued at from 90-100,000 francs. This, however, was only a small amount as compared with the wealth that the soil contained, and could easily have been quadrupled if the prospectors had been more energetic, if the negro labour had been better controlled, and if more sluices, etc., had been constructed.

The gold collected is refined by a chemist in a laboratory at Kilo, and then re-melted into ingots the size of bricks, each worth 37,000 francs. The first large consignment of these ingots, valued at 1,000,000 francs, had been sent just before our arrival to Herr Schulz, the German Vice-Consul, the representative of the Victoria Nyanza Agency. From there it was transmitted to Brussels.

So far it has not been possible to ascertain the precise limits of the gold region. As, however, the area is an enormous one, it is not to be wondered at that up to the present no creek has been worked without result.

Reef gold must also be taken into consideration. No shaft had been sunk when I was there. The rivers Shari and Ituri carried, however, so much gold that the management, following

* Workings on the creek.



A BAWISHA LIP ORNAMENT



THE ITURI AT SALAMBONGO

a sudden impulse, had decided to have a dredge sent out at a great cost—a somewhat premature purchase. In any case, the prospectors were not unanimous in their opinions regarding a suitable spot for it, as in places the rivers rush along over rocky ground, and sandy subsoil is rarely found.

As the “champtiers” lie amidst beautiful forest scenery, an hour or so distant from Kilo proper, which is also a military post, the prospectors are lodged in camps. These consist of cleanly, *matete* huts, and lie along the wooded, hilly ridges in the neighbourhood of the workings.

As is the case in every new undertaking, there were a great many defects and blunders in the administration of Kilo, which contributed to the trammelling of the workers; these, however, will disappear during the course of time, and I have reason to believe that the industry is already being carried on in a considerably more energetic and practical manner. In any case, Kilo is a place capable of immense development. Undreamt-of treasures lie hoarded up there by Mother Earth, which, if experts can be believed, hold out the promise that the little place will become some day one of the most important gold centres in the world.

We all had reason to be grateful for our interesting experience at Kilo. Foreign visitors had never before been received there; never had an outsider been privileged to obtain a glimpse into the Kilo gold workings. We left with a feeling of great satisfaction—Wiese, Boyton and I—and proceeded on our way to Irumu, through the territory of the Baniari. Skirting the edge of the forest, along a bad native path, and over the hill summits, we pushed on until the path widened out into the *barrabarra* in the vicinity of Salambongo. There we found a large Wambutti camp, whose chief had sent the hunters into the interior of the forest to kill a *solì*. In the hope that we might perhaps acquire an antelope of such immense zoological value, we halted for a day to await the results of the hunt. We made use of the leisure thus afforded us to photograph and take measurements of the

pygmy women and children who remained in the camp. We also had an opportunity of adding to our piscatorial collection, as the Ituri flowed direct through the settlements. We tried our trusty dynamite method again, but we had to fire one or two charges before we discovered a spot where the fish congregated. Then, however, the result obtained passed all expectation, for after having set aside in methyated spirit all the specimens required for our collection, such a surplus remained that almost every one of our carriers was able to enjoy a fish for his supper.

In the afternoon the prospectors, Messrs. Crawlay and Giliot, arrived quite unexpectedly from Kilo with the intention of investigating the auriferous contents of the river-bed and its vicinity. To accomplish this object they were forced to cut a path for themselves through the jungle on both banks of the river, as well as to dig up the soil and collect samples every 5 kilometres. They reckoned that the return march would take them about three months.

At nightfall the pygmies returned from the hunt. But, alas! with no result. So, although our hopes were dashed, we tried to console ourselves by watching the dances of the natives before their camp fire.

Wiese, in particular, had an exceptional opportunity of studying these. I had already settled to rest, and deep silence reigned in camp, when he heard singing and the beating of drums in the direction of the Wambutti huts. He went out in the moonlight, followed the sound of voices, and came on the dwarfs, male and female, standing in a circle. He thought himself in the land of legends. His tale next morning was as follows: "Two men were squatting in the centre, with tambourines, beating them in measure, while those standing sang melodiously, sometimes in a slow and melancholy cadence, sometimes very quickly and gaily. First their little legs would start dancing on the spot where they stood, then they would move round in a circle to the left or to the right. I was much struck with the motion of the upper part of their bodies. The little



PYGMIES AT SALAMBONGO

folk exhibited tremendous suppleness in their hips, and in dancing bent themselves so far backwards that I feared they would break their spines. The dance concluded with a somewhat affected pose that reminded one of the first awkward attempts of an amateur ballet troupe. Whilst the circle danced and sang, a man and woman leapt into the centre and played at catching one another. The way in which the one constantly eluded the efforts made by the other in the comparatively small space was a marvel of skill. Whether there was any deeper meaning underlying the dance, I was unable to find out. I was amazed at the abandon that the small people threw into their dancing, neither were they disturbed in the slightest degree at my presence."

On the 16th of March we saw the houses of Irumu in the distance. Soon after the head of the caravan arrived at the Shari River, which flows past below the outpost. Familiar faces welcomed us farther back, and a few moments later we were shaking hands with Mildbraed and Czechatka, whom we were glad to find in the best of health and spirits. *Chef de poste* Tillemans and M. Bernstein, the only two officials connected with the administration at Irumu at that time, also came up to meet us.

Irumu is an unusually large outpost, held officially by ten Europeans, all of whom, however, excepting the two mentioned above, were away on Government service. The place owes its importance to its favourable position, as it is the junction of the great military roads from Stanleyville to Fort Portal and Rutschuru to Beni and Kilo. Thus nearly all Belgian officials whose jurisdiction leads them to the northern districts of the Congo State are compelled to pass it. In consequence the traffic through Irumu is brisker than at any other outpost. This cheerful-looking place, which consists of a row of thatched brick houses, spacious messrooms and two great store-houses, is situated on a hilly plain three hours distant from the eastern margin of the great native forest.

As elephants abound in the neighbourhood, the quantity of ivory brought in by the natives is very considerable. Eight to nine hundred kilograms leave for Boma every month, and are

placed to the credit of the Congo State. Irumu, however, has to be content with an inferior position as regards the yield in rubber, on account of its distance from the forest's edge. The monthly harvest amounts to only some 500 kilograms. This is an insignificant quantity when compared with that obtained in the main rubber centres—the Aruwimi and Uelle basins, Nepoko, Avakubi, Bomili, etc. There, during the best years, 7,000, 10,000, and even 14,000 kilograms are produced monthly. Yet the rubber-tree plantations are exposed to special peril, as refractory natives lop and pull down the biggest and most valuable trunks of the *Funtumia elastica* and the gum-yielding liane. The insubordination of the population in the districts lying between the Aruwimi and the Uelle assumed previously such a threatening character that a punitive military force was despatched there. The *Chef de zone*, resolute and trustworthy Commandant Engh, a Norwegian by birth, had to proceed to the scene to restore order; and through his own wariness and discretion, as well as that of his officials, this was eventually accomplished.

Rightly recognising the danger that threatened the rubber industry in consequence of the hostile attitude of the natives, the Congo State has for some years established great rubber plantations; in fact, we came across them at all the more important European stations. The plantations, however, being only of recent growth, it has so far not been possible to determine decisively which sorts are most suitable for cultivation.

The nature of the ground has been taken into account generally, and those varieties selected which flourish best under similar conditions in the virgin forest. Commonly, the *Funtumia elastica* is given the preference, as it grows much more rapidly than the rubber vine. Whilst the tree can be tapped, without injury to its growth, after a period of six or seven years, the vine can only be turned to account after twenty years. The cultivation of the liane, therefore, is on the decline, and they are only grown where the *funtumia* will not flourish.

At all European stations one plant must be put in the ground



IRUMU



THE ITURI AT IRUMU

for every two kilograms of rubber delivered. This order, practical as it may seem, is not feasible, the amount of rubber obtained being too great. In order to conform properly with the extremely prudent regulation, it would be necessary to employ an immense number of labourers in rooting, planting and clearing the plantations. As a matter of fact, most enterprises in the country suffer from an insufficiency of labour, as has also been the case in German East Africa. At Avakubi we saw a plantation of 742 acres, and another at Nambuya of 1,976 acres, where there were hardly sufficient labourers for planting alone. When the time taken in clearing is remembered, as well as the fact that any part of the plantation which has been cleared is choked with grass a metre in height about four to six weeks later, which threatens to kill the young plants, some little idea of the tremendous difficulties which beset the cultivator can be gathered.

I must not omit to add that the coffee and cocoa plant is cultivated at most of the Congolese outposts. Whilst the latter product is used for the export trade, coffee (*Liberia*) is retained for home consumption only.

We remained fourteen days at Irumu. I was awaiting the arrival of the other members of the expedition at the end of the month, having fixed this place as a rendezvous before our departure for the Congo on the 1st of April. The interval was employed in making excursions in the neighbourhood. Dr. Mildbraed went to Ngombe Njama, on the edge of the forest, for a few days, whilst Schubotz roamed about in the vicinity or fished in the Shari. We also attended to our mail, wrote to the firms at Lake Victoria and on the East Coast concerning our march to the west, drafted letters, drew up reports, and commenced packing our latest collections for despatch. These were to be conveyed to Entebbe by our faithful carriers, who were there discharged and sent home. They were wretched and worrying days for Wiese, who, amongst other things, had to examine and revise the claims made by the men. Pay-sheets

had to be carefully examined, disputes settled, and the men convinced that everything was just and in order; further, each man had to receive his travelling "*posho*" (food-money) in ready-money, for the purchase of stores for the return journey to his native place.

After having received a handshake as a farewell from each one of us, they marched away homeward bound in detachments, each under its particular head-man. It was with a feeling of regret that we saw them leave us, after having shared our pleasures and trials for nearly a year. Through good and bad days, in the heat of the steppes and in the icy breath of the snow-capped volcanoes, they had fulfilled their duty loyally, like tried and trusty men. We dismissed them here in order that they should be spared the long return journey from Avakubi, some thirty days' march farther ahead. Till then we contented ourselves with carriers from the Congo territory. The march was to terminate at Avakubi, as we intended continuing our journey from there to the Congo by native canoes upon the great tributary, the Aruwimi. The troops of the expedition were to escort us through the forest until we reached the river.

Czekanowski arrived on the 27th, after his wanderings, which had led him as far as the Uelle. He had endured a good deal in consequence of the violent rains, from which we had, fortunately, been spared from the time that we quitted the neighbourhood of Ruwenzori.

In Irumu, however, we prepared to encounter a third rainy period, the advent of which was expected daily; and, in fact, in the evenings we saw the clouds gathering threateningly together, accompanied by sheet-lightning in the distance. A little later showers set in daily. They announced their arrival by violent winds of sweeping force. On the afternoon of the 30th March the south-western heavens grew coal-black. The heavy rain advanced towards us in an opaque steel-blue mass, sharply defined at its sides. At one kilometre's distance from the station it was pouring down in torrents. Thus we were able to observe all the phases of this vivid spectacle of Nature without being



A "STATION" VILLAGE IN THE CONGO PRIMEVAL FOREST ON THE WAY TO STANLEYVILLE

drenched; but the storm reached us before long. Setting in with suddenness, it burst on the buildings of Irumu, tore and tugged heavy trusses of straw from the roofs, and swept them far away. The rain rattled at the doors and poured through the crevices into the rooms, so that all our writing materials were whirled and swirled around. Outside it was almost impossible to stand erect. The hurricane, however, disappeared as suddenly as it had come, and a quarter of an hour later the debris lying around was all that remained to remind us of our unwelcome visitor.

It is futile to attempt a description of tropical tornadoes at their full force. One must see these phenomena to conceive an accurate idea of them. Their grandeur is then printed indelibly on the memory. In two or three quarters of the heavens inky darkness gathers, then come flashing lightning and crashing thunder, with such crackling that it seems like Hell let loose. Lightning flashes along the horizon and the whole firmament seems to be illuminated at times as though by gigantic torches. Watch in hand, I have counted one or two such electric discharges to the second.

Czekanowski had found such noteworthy material for investigation during the Uelle expeditions in the territory of the Mangbettu that he harboured the wish to return there. As he asked for a further three months for this purpose, he foresaw the necessity of returning home alone. We therefore said good-bye a few days before our departure, with a confident "*auf wiedersehen* in Europe."

As the time fixed for the rest of us to leave was drawing very close, and as we had no news of Kirschstein, despite various letters and written instructions that I had despatched, his silence began to cause us uneasiness. We thought that we should be deprived of the company of our kind and jolly comrade. I will state here that, unfortunately, our fears were confirmed. Almost immediately after we commenced our peregrinations into the shady interior of the great African forest news reached us of the catastrophe at Karrissimbi, which cost Kirschstein half of his

followers. As we learned later, on our arrival in Europe, the aggressive attitude of the natives south-east of Mount Muhawura, more particularly the attack by the chief Lukara, was responsible for the subsequent delay. This sultan and many of his warriors had lain in ambush for the geologist's caravan and barred its path. As soon as the first arrows came whizzing over Kirschstein's head he was forced to defend himself. A fight was quickly in progress, but, despite heavy firing, the enemy would not budge. Ever and again the enemy's bowmen were spurred on to fresh onslaughts by a fellow in a red toga, who danced before and around them with wild and furious gestures. Kirschstein aimed at this man, and succeeded in shooting him down. Then only did the savage hordes, deprived of their leader, begin to yield. In spite of this, Kirschstein was in a very critical position, for when the cartridges were counted after the fight their total for the whole caravan was eleven. In order, if possible, to stave off a further attack, he caused threats of terrible punishments, in case the onslaught should be renewed, to be proclaimed throughout the district by means of a crier. This intimidatory measure fulfilled its purpose; Kirschstein was left in peace.

As his stores were beginning to give out, he sent letters to me begging for provisions. At the same time he asked for instructions and information as to the intentions of the main caravan. I never received these letters, nor did Kirschstein receive mine asking very urgently for an explanation of his absence. No doubt they were simply thrown aside by mail carriers, who were recruited from the natives, or stolen by *force majeure*. Thus, without any news and in a great state of uncertainty, further delay on our part would have been fruitless. Beni and Rutschuru were communicated with by means of reliable messengers, and letters deposited there for Kirschstein.

In Irumu packing proceeded apace. The day for departure dawned. How we missed our faithful Wassukuma and Manjema, who knew their individual loads even at a distance! Things



VIRGIN FOREST SCENERY

were changed, for each man had to have his load apportioned to him before the start. We knew, moreover, that in the days to follow frequent changes of carriers would take place. Thus we resigned ourselves as well as we could to the petty bothers that were in store for us. Despite all this, however, and despite torrents of rain, the Europeans' faces lit up. From now our course was directed homewards.

CHAPTER IX

IN THE SHADE OF THE VIRGIN FOREST

WE started on our journey to the west on the 1st of April, 1908, by a route which has gained sad notoriety in the history of African exploration. We followed a path almost identical with that which Stanley traversed and on which he experienced the greatest hardships and privations in coming from the Congo to the succour of Emin Pasha, who, cut off by the Mahdi revolt, lived practically a prisoner in his equatorial province. The same vast forest, so gloomily described in the pages of "In Darkest Africa," lay before us. This darksome forest, indeed, with its storms and rains, famine, disease and deadly attacks, nearly proved fatal to the whole caravan and reduced it to a condition of utter desperation and madness. The first patch of green grass appeared to us as a token and promise, as the olive branch in the mouth of the dove did to Noah of old.

We were travelling along paths which had already been made; we knew in advance where we should lay our heads to rest from day to day; we were well supplied with stores; we journeyed more comfortably here than we did at first in the steppe country, or in the volcanic region, and yet we experienced that oppressiveness which is always felt in this gigantic forest. The conditions of travelling alone were different; the forest remained the same in its immeasurable and inexorable lonesomeness.

The departure took place under inauspicious conditions in streaming rain, which had set in violently during the night, though unaccompanied by lightning, and had compelled many of us to wander about with our beds as the water penetrated the houses. The confusion usually in evidence when quarters occu-



A FALLEN GIANT: CONGO VIRGIN FOREST

pied for a considerable time have to be abandoned was still further increased by the breaking-in of two hundred unpractised Congolese auxiliary carriers. Then there was the rain! But the weather was in accordance with our general condition of depression as we set out at last, accompanied by our escort, under Lieutenant Boyton. It cleared up before long, and after three and a half hours of marching through pleasant, hilly and undulating steppe land we reached the boundary of the dense West African forest, from which we were not to emerge for a period of two months. An hour later we reached the Ituri, a hundred and twenty metres broad at that spot. We crossed it in a dug-out, the transit of our riding animals causing a good deal of trouble, and went into camp at Kifuku, the old Irumu, and the first of the fixed camping quarters which have been erected throughout the whole Irumu-Stanleyville route at intervals of fifteen to thirty kilometres. They serve for the convenience of passing Europeans and the officials of the Congo State, who, coming from the Congo, wish to reach the upper Ituri district or Beni.

The serai in these encampments nearly always presents the same appearance; a clay hut, usually thatched with phrynium leaves, and consisting of two almost cubiform "rooms," divided in the middle by a broad corridor. A raised gallery, called the *barasa*, runs under the wide, projecting roof. The little brick houses, often very pretty ones, at the stations are for the most part built on the same pattern. In the serai the floor is usually formed of stamped clay, and a primitive form of table is often placed in the hall close to the *barasa*. I have been reckless enough to repose in these *barasas*, although aware that the roofs are by no means always watertight and fever relapses are sometimes brought on from resting in such places. As a protection from the rain, I used to draw a wrapping of balloon material over the roof, a stuff that has often rendered excellent service as a covering for the loads and as a rain-tent for the carriers; then I felt safe. These houses, however, are always pleasant to spend a halt in, especially the "hall," which is used as a

mess-room. It is much cooler inside them than in the tents, and the heat and blinding glare of the sun are never felt so keenly as, when at the end of a march, one emerges from the shade of the native forest and enters the clearing around the serai and its village.

At all these stations one meets "*Arabisés*," as they are called by the Congolese, or "*Wangwana*" (the Educated Ones), as they call themselves in the Kisuaheli tongue. Ethnographically they represent a quite inextricable *mixtum compositum* of Arabs, east coast and inland negroes, Manjema from west of Tanganyika, and natives from the eastern districts of the Congo State. They are offspring and descendants of those slave and ivory hunters with whom the Belgians had to wage such fierce battle, remains of Tippoo Tib's hordes of the Aruwimi-Ituri district, the Ngarruwas and Kilonga-Longas—the oldest of whom still remember Stanley well. Of course there are others, too, who have come to the Congo in later years in the train of the Arabian dealers. They speak Kisuaheli, richly interspersed with native and Arab expressions, sometimes called "*Kingwana*"—the language of the Wangwana. In any case, the designation *Arabisés* is a fitting one. They wear long Arabian garments and turbans. Many of them show the strong admixture of Arabian blood very plainly, though one seldom meets pure Arabs. There are, doubtless, some shady customers amongst them, and it is certain that, besides their lawful business, they carry on extensive smuggling in rubber and ivory over the German and English boundaries—after all, a peaceful and innocent occupation compared to that of the days of their youth, when, before the establishment of European rule, the Congo was a land full of horrors. Their official activity is limited to keeping the stations and the roads in order, and in providing the Europeans and carriers passing through with provisions and stores. Manioc and sweet potatoes are principally cultivated in the clearings, also rice and maize. The Wangwana did not grow bananas to any extent; they complained that the elephants made too much havoc amongst them.



THE ITURI AT MAWAMBI



A FOREST FERRY ON THE ITURI



A BRIDGED OBSTACLE ON A CONGO VIRGIN FOREST PATH

The Shade of the Virgin Forest 241

The road which connects the stations, the *barrabarra*, may best be compared to a woodland path or lane. It winds through the great African forest, about four metres in breadth, unbroken by any glade, the smaller trees and the undergrowth simply having been cut away. The larger trees remain, and create no obstacles, as the only part which is used is a well-trodden footway in the centre. The negro always marches in single file. Should one of the giants of the forest crash down and block the roadway, it is usually left lying, as to clear it away would necessitate a good deal of trouble, hardly proportionate to the benefit accruing to the roadway. A short detour is usually made around the obstacle by cutting a small bypath in the interior of the forest or by building an extempore bridge across it or by making steps. The bridges over the numerous small brooks and through swampy dips are the vulnerable points of the route. In parts they are simply corduroy roads, though often sturdier trunks are laid lengthways, with round logs and boughs lying across them, the gaps being stopped with clay and earth. These constructions are deserving of all praise and are quite practicable for pedestrians and, if of recent construction, even for horsemen. Unfortunately, however, they are also used by passengers for whom they are absolutely not intended, namely, by elephants. The constructions, which, after all, are only primitive negro handwork, are naturally not adapted for such weights, and thus the older bridges and dams sometimes seem to consist of "a number of holes joined together."

Our marches proceeded monotonously from station to station, and the longer we travelled without incidents worthy of remark the deeper was the impression made upon us by the great forest. I believe a long stay in this forest would lead to heavy mental depression in sensitive men. The unutterable feeling of oppression which makes itself felt in the course of time lies in the absence of any free view, the impossibility of permitting the eye to rove freely across a wide space, or of once catching a glimpse of sky and earth merging in the far horizon. Only a short stretch of road can be seen ahead; you are hemmed in by

thickets which prevent you from penetrating the green depths on either side, and, on gazing upwards, the dense canopy of foliage overhead forbids an untrammelled view of the heavens to the eyes so wearied with eternal green. On coming to a glade, the green walls rise implacably up to a height of forty metres, and the traveller can only be compared to a prisoner who has exchanged the narrow confines of his cell for the prison courtyard. The forest is oppressive in its monstrous hugeness and density, filling up all the space from the ground to the highest tree-tops. Thus we could understand how it was that the Belgian officials found their *fôret vierge* deadening and soul-killing, and often spoke with mild horror of the march through the forest from Stanleyville to their stations on the eastern boundary.

To those coming from the open plains, animal life here appears to be extinct. Just as the ocean voyager can see little of the wealth of life concealed in the sea, so we could discern nothing of the rich animal world hidden in the depths of the interior of the forest. It is true that we came across many tracks of elephants and buffalo, but we never saw the beasts themselves; the birds were silent, and not even monkeys enlivened the motionless trees. It was not until we were a little way from Mawambi that we saw somewhat more of the fauna. At the start monkeys abounded, but they were scared away by Mildbraed. He was the first of us to arrive in Irumu from Beni, and as he found his hands idle there he marched off in advance, so as to have more leisure for collecting; he was to await our coming at Mawambi. When he shot down the boughs from the tree-tops he did not spare their four-legged inhabitants; he showed us some colobus species, black mangabeys (which look like devils), and a green monkey. At night we often heard elephants in the darkness amongst the banana fields around the station, breaking down the shrubs and generally creating havoc.

Until we reached Mawambi we had thunderstorms almost daily, but fortunately they did not break out till the afternoon or during the night. The loamy ground was in a state which did not conduce to pleasant travelling. The air was so saturated



A STREAM IN THE CONGO FOREST

with moisture that the forest was filled with a hot-house atmosphere and a disagreeable smell of dank decay and mouldiness. Sometimes the rain helped to vary the deadly monotony of the day. At the station on the Epulu, which flows into the Ituru from the north-east, I sat in my tent on the 6th of April, indifferent to the rain, with my attention riveted by a perfectly "new" newspaper article written early in February. Suddenly I became aware that I, my table, and my chair were resting upon a solitary island. My tent had been carelessly erected in a small hollow, and all the rain-water in the place was flowing into the depression. Great dams and skilfully constructed sluices eventually diverted the flood water away. On another occasion Schubotz was caught. The heavy rains had made his tent-ropes shrink to such an extent that they tore the tent-pegs out of the ground, and the whole structure fell in, burying the sleeping proprietor beneath it.

Our route took a curved direction from Irumu, through Kifuku, Cambi ja Wambutti, Mokoto, Mamulambi on the Epulu, Songolo and Agwama, to Mawambi on the Ituri. The river bends to the south, and Stanley's road runs between. At Mawambi we were met by the *Chef de poste*, M. Athanasoff, a Bulgarian, and by Mildbraed, who was smiling contentedly. He had evidently had the best of it on this march. He had gathered rich booty amongst the exuberant green vegetation, and, with the botanist's trained eye, had found much interesting material which would naturally lie hidden from the layman, however great a lover of nature and keen observer he might be.

Mawambi is only a small post, possessing a *Commis d'état*—M. Athanasoff already mentioned, the only representative of his nation in the somewhat motley assortment of Congo State officialdom—and a non-commissioned officer, a Swede, the commanders of the small troop of Askari. The station yields about a ton of rubber monthly, the natives being pledged to bring in three kilogrammes per head in that time. About eight hundred kilogrammes of ivory are also sent from this place to Boma yearly for the State.

The station is prettily situated on a hill above the banks of the Ituri, which flows very broad and strong at this point, but is not very deep; and we could enjoy a beautiful view of it from the *barasa* of the mess-hut. As we were able to see not only across the river, but also had an uninterrupted view over a considerable portion of the forest, we felt we could breathe freely again.

After a halt of three days at this pleasant little station, we started off again for Avakubi, in a southerly direction from the river.

Animal life revealed itself more abundantly as we proceeded. In the proximity of Mawambi there is a species of dwarf antelope which appears to be very plentiful. They are caught in gins and traps by the natives, and brought in to the station alive but cruelly bound, where they make a valuable addition to the menu. We hoped to have been able to bring one or two of these charming creatures back to Europe with us alive. At first I let them run about freely in my room at Mawambi, and they soon gained such confidence that I could feed them. Unfortunately, these exceedingly delicate beasties, of which we obtained five, succumbed in spite of the most attentive care. Two baboons bagged by Wiese formed a remarkable capture, remarkable on account of their being met with at two hundred kilometres in the interior, for it had always been assumed that the margins of the forest, with the natives' fields, to the fruits of which they are very partial, formed their particular reserves and hunting grounds. At one camp we got a young long-tailed monkey from the Wangwana, an attractive creature, with dark fur and a white triangular spot on the nose. She was perfectly tame, but nothing on the dining table was safe with her. Owing to her amazing Semitic-like physiognomy she was called Rebecca. At Avakubi we procured a husband for her, and we saw there a young chimpanzee, who looked like a patriarch, and patiently permitted all kinds of pranks to be played with him.

The feathered inhabitants of the forest are far less in evidence than one would be inclined to believe, as the height of the trees



“REBECCA”
(*Cercopithecus Schmidt*)



WANGILIMA (ARUWIMI)

and the dense undergrowth conceal the majority of the species from the eye of the observer. The birds most easily discerned are the great white and black hornbill, the immense turacus and a shrike, first discovered to us by its sweet song, the only really good forest singer. The insect world is very strongly represented. There is a species of cicada, almost imperceptible to the eye of the traveller on account of its protective grey colour, which matches the bark of the trees; it is about four centimetres in length, and its exceedingly shrill, almost metallic, chirp fills the woods with a noise which, as Stanley said, surpasses the "warbling" of the Manjema women. There are gorgeous diurnal butterflies, the West African *nymphalidæ* predominating, which flutter in crowds at the brooks and moist places on the way, or on the ordure of mammalia, and fly up in clouds in front of the caravans. The beetles are less noticeable, but at times goliath-beetles are to be found, something like colossal editions of the rhinoceros-beetles, which belong to the very largest of their order. Little black wasps become a great source of annoyance at times; they build their nests, which look as though they were made of coarse grey-brown paper and resemble wind-sails, in the boughs of trees. They are often the cause of serious confusion in the caravan through their very painful stings. The ants, however, play the chief rôle among the representatives of the lower animal world in this forest. The termites, or white ants, erect strange structures propped up against the trunks of trees which make one think of pileated mushrooms; the house-ants hump the earth high up into the tree-tops, where among the boughs they construct habitations which bear such a striking resemblance to monkeys sitting quietly that we sometimes grasped our rifles and very nearly pulled the triggers. Small ants cement up all the gaps in the leaves of the underwood with earth and refuse, and fall fiercely upon any invader who attempts to cut his way through. Then there are reddish-brown ants, about the size of our wood ants, which march in thousands along the road in close formation, a respectful way always being made for them by all who cross their path, as they bite fearfully. The most interesting of

the ants is a fairly big, very slender and perfectly black ant, which inhabits the hollow, horizontally projecting branches of a small tree, *Barteria fistulosa*; they present everyone who, through ignorance or carelessness, touches their tree with a very memorable souvenir, as their bite is so painful that one feels it for twenty-four hours at least.

It rained somewhat less now and it was considerably warmer (31-32 degrees Celsius, atmospheric temperature). When we stepped into a clearing after a march we were forced to recoil from the glowing heat and the blinding glare. We also learned the full significance of tropical storms. They had a more thrilling and terrifying effect here than in the open plains. It made an overpowering impression upon one to watch the tornado seize the giants of the forest in its mighty grasp, bending and tossing them hither and thither, while the green sea of tree-tops surged and roared like the wild waves of the ocean. I never saw this forest look so beautiful as when lashed up to conflict from its habitual calm serenity.

On arriving at the third station after Mawambi we found Commandant Engh, *Chef* of the Ituri district, awaiting us. As he was to escort us from this point, Lieutenant Boyton returned to Irumu. We were all very sorry to part from him. A very agreeable companion and an excellent adviser, he had been of inestimable service to us during the six weeks of his escort.

On the 22nd of April we entered Avakubi by a broad, well-kept road, and came on an enormous open space of ground, where the Congo flag was waving from a tall mast. The garrison and all the station hands were paraded, no fewer than seven Europeans being on the right flank. Avakubi is a large station, with splendid avenues of oil palms, straight roads, with pretty brick-built houses, and shady mango trees. A large Wangwana settlement lies at a little distance from the station, in which a few Arabs have established themselves as dealers. An official dinner took place on the evening of our arrival; the "official" part of it, so far as I was concerned, consisting in the fact that I wore a starched shirt and a black tie, for the first time since

June, 1907. Father Superior Wulfers,* of the neighbouring mission, was also present. The next day I paid a visit there alone. The mission is very prettily situated in a glade, and makes a cheerful as well as a very imposing impression, with its new brick-built houses, which, especially the large church, bear a resemblance to the Romanesque style.

On the 25th of April we sent our trusty Askari home. As they paraded before me for the last time with all their old habitual discipline, I thanked them for the loyal services which they had rendered during the past twelve months. I can give them an excellent testimonial. Faithful, and more than faithful, in their duties, they never, with very few exceptions, gave any cause for serious complaint. Some of them had to look after the safe conduct of the scientific collection loads to the coast, and so were separated for months from the expedition; others had to hasten with mail matter from one *safari* to another on journeys lasting for weeks at a time. In spite of all, excesses were never committed. The conduct of these soldiers bears eloquent witness to the excellence of the German methods of drill and instruction, which even in the absence of superiors shows no relaxation of discipline.

As a conclusion to this chapter I should like to attach a few general statements made by Dr. Mildbraed concerning the forest, in which he briefly sketches one of the most important results of our botanical collections:

“One often comes across conceptions, even in recent works, regarding the extent and character of the African tropical forest and the so-called Equatorial forest, which do not correspond to the reality. I will quote a few such instances:

“‘. . . Its extent alone is smaller, compared with the Malayan and Brazilian forests; it is limited to a relatively narrow strip on the Guinea coast to the Cameroons, and farther south to the Gaboon and central Angola. Thence eastwards it extends,

* Father Wulfers met with a fatal accident whilst travelling on duty in the spring of 1909.

impoverished and alternating with savannahs in the Congo region, to the great lakes,' etc. Or again, 'The great, gloomy, Equatorial forest, which has no connection with the coastal forests, and which was traversed by Stanley, Emin Pasha, Count Götzen and a few other travellers, stretches deep into the interior of the Congo territory. It cannot in any way compare, however, with the virgin forests of Brazil or of the Sunda Islands.'

"Regarding the first quotation, the point at issue is not that of a vast uninterrupted forest in the Congo basin; it is an accepted fact that broader or narrower strips alternate with savannahs there; in the second quotation the existence of an Equatorial forest is recognised, but the character of tropical virgin forest and any connection with the woods near the West African coast is not allowed.

"In contrast to these statements I would like to quote a sentence from Stanley: 'Visions of Brazil may be conjured up in the Congo basin; the river itself is reminiscent of the Amazon, and the Central African forests of the immense forests of Brazil.'

"From the Cameroons and Gaboon coasts of the Atlantic Ocean, the waves of an African virgin forest surge uninterruptedly up to the foot of the Ruwenzori Mountains in the far east; it is only laced in by savannahs like a narrow strait between the most south-easterly point of the Cameroons and the Ubangi. Now, if we take only the eastern portion of this hemmed in part, the actual Equatorial forest, we perceive an immense mass of forest bounded by the curve of the Congo-Lualaba from Coquilhatville, on the Equator, to Nyangwe; farther by a line from Nyangwe to the Burton Gulf of Lake Tanganyika; in the east approximately by the western edge of the Central African rift-valley; in the north by the Uelle-Ubangi; and in the west by the Ubangi in its lower course. Then comes a junction with the forests of the south Cameroons. This forms a territory in round figures of 600,000 square kilometres, whose connection with the genuine tropical forest is unbroken, either by mountains worthy of the name, or by any strips of pasture



A GLADE IN THE VIRGIN FOREST

land; a forest reserve which, as a compact whole, cannot be equalled save in the basin of the Amazon.

"The question remains: Is this forest genuine virgin forest, tropical forest of typical formation? Surely the greater part must be. I will fall back again on Stanley. He says: 'Imagine the whole of France and the Iberian Peninsula densely covered with trees 6 to 60 metres in height, with smooth trunks, whose leafy tops are so close to one another that they intermingle and obscure the sun and the heavens, each tree over a metre in thickness. Then ropes stretching across from one tree to another in the shape of creepers and festoons, or curling round the trunks in thick, heavy coils, like endless anacondas, till they reach the highest point. Imagine them in full bloom, their luxuriant foliage combining with that of the trees to obscure the sunlight, and their hundreds of long festoons covered with slender tendrils hanging down from the highest branches till they touch the ground, interlacing one another in a complete tangle.' That sounds highly fantastic, but making every allowance for Stanley's journalistic heroics and extracting the kernel of fact, his description is fairly accurate.

"This forest possesses the distinctive characteristics of the tropical virgin forest in the great height of its trees, its numerous liane—the most striking amongst them being the Rotan palm—and the many orchids and other parasites.

"There are many other biological peculiarities which prove its typical tropical character.

"There is yet another question: How does the flora of the Equatorial Forest compare with that of the forests in the vicinity of the west coast? Are we to accept the widespread opinion, viz., that it is inferior in species, especially of the endemic order? This question may be decidedly answered in the negative, and I look upon this fact as one of the most important botanical results of the expedition. This forest, with which we became familiar in its most eastern portions, is in no way inferior to the forest of the Cameroons and Gaboon so far as wealth of interesting types is concerned. Bipinde in the Cameroons, distant about

2,000 kilometres from the collecting centre of our expedition in the Ituri forest, is a district particularly rich in endemics, *i.e.*, species which characterise that place. I was therefore all the more surprised on one of my botanical excursions to come across the Bipinde flora *en masse* at the foot of Mount Ruwenzori. It may therefore well be assumed that the forests of the West African Coast and the Equatorial forest are connected, not only geographically, but that botanically they also form one homogeneous whole."



WANGILIMA VILLAGES ON THE ARUWIMI

CHAPTER X

HOMeward BOUND

WE left Avakubi on the 27th of April. We had looked forward to the day with pleasurable anticipation as a relief from hot marches through tangled foliage, and a pleasanter mode of travel in large native canoes. The Ituri, foaming over the jagged rocks, rushes wildly through the centre of the village, which is picturesquely built up on the river banks. It loses its tempestuous character further below and flows along sluggishly, under the name Aruwimi, its dark waters forming falls as it nears the valley. There its navigability begins anew, and we found twenty canoes waiting to carry us to the Congo.

After three-quarters of an hour's ride we arrived at Kifuku, our point of embarkation. The rocks there jut far out into the river, and with the dark waters swirling around them form a picturesque feature. The oarsmen bustled about briskly here and there, picking up tents and provisions and stowing them in the boats. A crowd of folk who had followed us out of curiosity loitered round. A few Arabs, the last representatives of that arrogant race which once held sway in Africa, greeted us and handed us gifts of carved ivory. The terrace-shaped banks swarmed with throngs of people, gossiping, chattering, and generally making a bedlam of the place with their hubbub as the flotilla at length set out. The wildest confusion and most deafening din prevailed. All the boats were trying to leave at the same moment, and this caused them to jamb against each other and crush the occupants, who started yelling. Some of the oarsmen who arrived late swung themselves into the first canoe that came handy, and jumped from boat to boat wildly

gesticulating till they found their own. We endeavoured to bring order into the chaos, but our efforts only had a contrary effect. As everyone was shouting at once, nobody could make himself heard. At last the coil was disentangled bit by bit; we were given our course, and, accompanied by the lusty singing of the entire crews, our little fleet sailed out on its voyage. Signalling brief farewells to our friends on the receding shore, we turned our eyes to the front and started on the last stretch of our journey.

The type of boat we used was the common dug-out canoe. The craft were of greater length than usual, however, and in addition to Europeans, boys and Askaris, they bore twenty loads and as many oarsmen, who were posted in the yacht-shaped, cut-away bows. These men were recruited from the Wabudu and Wangilima tribes—fine men, whose splendid display of muscle afforded evidence of perfect training. Their naked bodies shone with grease. They wore caps on their heads made from the long-haired skins of apes, or tightly-fitting bonnets smeared with grease and camwood—something like those used by our ladies at home when bathing.

Bending down low, the *baharia* (rowers) dipped their finely-carved, copper-decorated paddles deep into the water, pulling them out again with a peculiar rapid jerk which made the canoe vibrate a little. The men are excellent, hardy river boatmen, who, with some encouragement, will persevere untiringly for hours at their work. Whilst paddling they usually sing melodiously and with a purity and harmony of tone that I have seldom met with elsewhere.

We all found this agreeable mode of travelling an indescribable relief after our exhausting marches through the primeval forest. Lounging in *dolce far niente* style, stretched on a comfortable chair under the protecting awning, we saw most luxuriant sylvan scenery pass before us in an ever-changing panorama. One might have characterised this kind of voyaging as quite ideal had not the troublesome rapids ever and anon broken the sweet enchantment. Where the river is wide—in some places



WANGILIMA OARSMEN (1ST POSITION)



WANGILIMA OARSMEN (2ND POSITION)

it has a width of 1,000 metres—it flows along quietly and lazily, but where its waters are straitened and narrowly confined by islands it shoots impetuously in foaming cataracts.

We ended our first day's trip, which lasted nine hours, at Bosobangi, where there is one of these rapids. At this spot the river has a fall of three metres and becomes a cascade. As the boats had, of course, to pass this, they were emptied, and the natives of Bosobangi, who were familiar with this kind of work, carried the goods, which were heaped up on the bank, round the waterfall by a narrow path. We then took up our stand on a projecting slab of rock and trained our cinematograph on the foaming froth of waters. At a given signal each boat, manned by two men only, approached the chute in turn, and with the speed of an arrow shot down the seething waters.

Thrilling as the spectacle may be, the shooting of the cataracts itself is far from being the most agreeable of sensations, as there is always a danger of capsizing. A slight miscalculation of direction, or a cross-course taken by the boat, may result in catastrophe.

We experienced this on the second day. I was sitting in my canoe at the head of the flotilla, the other boats following at irregular intervals, when we came to another rapid, which we could discern from afar by the white froth on the crests of the waves. On approaching dangerous spots the Wangilima were in the habit of taking an experienced pilot on board from one or other of the many neighbouring villages. As this course was not pursued in the present instance—although the river was at high-water mark—it was a quieting indication that the passage offered no difficulty. We approached nearer and nearer the rapids, and soon heard the rushing of the waters. The singing ceased, the men shipped their oars; their whole duty now consisted in keeping the boat in the fairway. Involuntarily we sat erect and grasped the gunwale with our hands. A slight feeling of uneasiness made itself felt in the epigastric region. We reached the brink of the cascade, the canoe tipped lightly up at the stem and shot with a mad rush through the raging torrent.

Foam and spray splashed up and besprinkled the occupants of the fragile craft. A few moments more and we were through, gliding forward with increased speed for a time, and the danger, of which we only had a vague appreciation, was over. Yet the jabbering of the rowers, which immediately increased in animation, and the sudden lightening up and smiling expression of their faces warned us that their previous apparent tranquillity had only been assumed.

Turning our heads we observed that the second boat had sailed smoothly over the rocky river bed. The third one—Czeczatka's "pirogue"—was just coming up. Its bows had barely touched the line of foam when it suddenly turned obstinately athwart the channel. Recognising the danger, a Congolese Askari sprang up quickly, but a sudden side-jolt of the canoe and—he vanished to rise no more. The next moment the boat had capsized and thrown all its occupants into the water. We were horror-stricken! Any idea of rendering assistance was out of the question, for boat after boat came swishing into the current quite unstably, and each one had quite enough to do in endeavouring to avoid the fate of the luckless craft. It was lying, bottom upwards, jammed in between the rocks, and one boy who emerged from the flood succeeded in grasping its sides and clambering on to the keel. A hand rose up from the water close by—it was that of the non-commissioned officer. The boy, reaching out, grasped it, and on the head following, the brave boy, with a great effort, managed to pull his master up into a place of security. The pressure of the water, however, had loosened the canoe and it went floating down the stream with both of them hanging on to it. One by one the rest of the unfortunates appeared on the surface, some being borne away by the current, others, who had already passed the rocks, making for the banks, whilst some succeeded in saving themselves by clinging on to great stones, where, dripping with water, they awaited their release.

The work of rescue was not an easy one, as the canoes were constantly driven away by the current. At length, how-



A MOBALI (ARUWIMI)

ever, we contrived to throw a line to the poor fellows and managed to draw them into shelter. Five men, alas! were not seen again. The Askari, three Wangilima and a man of the Wabudu tribe had met with their fate. In addition, a great many articles had been lost, amongst them Czechatka's service rifle and side-arms, his tent, cartridges, and a tin box of writing materials.

After having convinced ourselves that there was nothing further to be done in the way of succouring the victims of the accident, we prepared to continue our journey. Czechatka was given one of the other boats and I gave him two of my people to help make up the gap in his crew. Another did the same. Then the episode was over and forgotten; the men started chanting their melodious native canoe-songs once more as they paddled tranquilly along the wide expanse of the river, their voices echoing and re-echoing against the dense walls of foliage on the banks.

The singing ceased abruptly. "*Tembo, bana*"—"elephants, master"—shouted the man in the bows as he turned round to me. I jumped up and saw the enormous forms of five elephants bulging out of the water, in which the colossal creatures were standing about half-covered and besplashing themselves in lazy serenity. I seized my rifle and my camera, uncertain what to do. The paddles were dipped very gently, so that no noise might betray our presence. The river was about 600 metres broad at the spot. The approach of the boats appeared to arouse a certain amount of uneasiness amongst the elephants, which was evinced by the raising of their trunks and the flapping of their ears. Creating a tremendous ripple in the stream, they returned to the bank, where there was a young animal who appeared to be in a very aggressive mood, and who was venting his spleen on the boughs of the trees, whilst the others stepped out of their bath and crashed into the forest. The youngster raged around for a time trumpeting, and then, turning in circles in the shallow water near the bank, sucked up the water in his trunk and spurted it into the air. As no danger appeared to

threaten our boat, I dropped my rifle and picked up my camera. Just then the ill-natured beast took his departure!

Our river journey had been very poor in respect of fauna. Besides the few elephants we had only seen one or two crocodiles. Flights of grey parrots had frequently passed over our heads, but the trees seemed almost lifeless. The interior of the forest is alive with animal life during the daytime; it is only at night and in the early morning hours that the river banks show signs of life, and after the animals have drunk their fill they retire again into the shady shelter of the thickets.

We reached the "Awake" rapids at three o'clock in the afternoon. This place certainly has a name, but possesses no houses, so we set up our tents in the forest close to the water's edge, whence we could enjoy a splendid view of the rapids, which stretched the whole width of the river. We were very glad to finish the day's journey, as the air on the water was most sultry and oppressive.

In the evening immense hosts of flying foxes flew circling over our camp. Uncertain as to whether they were identical with the Kwidschwi species, we brought down a few with our rifles. We were very much surprised to see that generally two fell to the ground together, instead of the one hit only, and on falling became detached. They were love pairs, who were probably whispering tender caresses into each other's big ears during their aerial flight. We found them to be identical with the Kwidschwi species.

At Bomili we learned what a well-kept European station of considerable dimensions was like. Pretty, whitewashed houses stretched out invitingly along the gently sloping river banks before the eyes of the weary traveller. Just opposite to them the Nepoko flows out from the green forest and joins the Aruwimi, which here forms a rushing cataract. As we were emerging from the Zone de l'Haut Ituri to enter the Zone de Falls, our amiable travelling companion, Commandant Engh, turned back for Avakubi with his rowers. A Norwegian by birth, Engh is one of the most striking personalities in the whole



FALLS OF THE ARUWIMI AT PANGA



WAR AND SIGNALLING DRUM OF THE ARUWIMI NATIVES

Congo State. His expressive face and the narrow lips betray that his lean person is dominated by a power of will out of the common, which, in conjunction with tact and shrewd diplomacy, has had a most beneficial effect on the natives. The Belgian Government has placed the right man in the right place. For the Zone de l'Haut Ituri comprises the great rubber reserve, where, as I have elsewhere mentioned, the native question is a specially difficult one, and the administration therefore carries with it great responsibility.

Our new crews showed themselves equally as experienced as the previous oarsmen, and knew how to navigate skilfully the long-drawn rapids at Kalagwa, which we had to pass on the 1st of May. As the river winds between islands abounding in craggy rocks at this spot, the current was more than usually strong and was considered very dangerous. Every boat therefore took one or two pilots from the neighbouring Mobali villages, who were intimately acquainted with the peculiarities of the stream. Sitting in the bows, these men would indicate the exact course with their hands, and the trusty crew endeavoured to guide the canoe into the sole navigable channel with their long poles. Most of the boats negotiated the three hours' passage through the seething froth in safety, but Wiese's, Schubotz's, and Mildbraed's barks were in considerable peril. Although the prophecy that we should have to anticipate losing at least one boat at this spot was happily left unfulfilled, it was only after a long and severe struggle that we were enabled to free the canoes from danger.

When we arrived at Djambi we had to elude the cataracts by making a detour on land. We came upon huts for the first time which differed entirely from the usual kind. The Wangilima, the ruling tribe in these parts, cover their rough huts with pointed, pyramidal roofs of broad leaves and brushwood. The natives told us that this covering is the only protection they are afforded against the driving rains in the wet season. This style of architecture appears only at intervals, and after another two days' journey the ordinary form of hut resumed sway. On

entering the village we were startled by the appearance of an ape in human form, or vice versa. This apparition resolved itself before long into the headman of the village. In order to increase his charms, the fellow had daubed the whole of his body a fiery scarlet with powdered camwood.

We came to the most imposing cataract when we reached Panga. These falls have a huge drop, and the roar of the boiling waters may be heard from afar. The cascades, divided only by detached, brush-covered rocky masses, extend the whole breadth of the river and present a magnificently picturesque subject for a painter's brush when seen in the light of the setting sun. We did our best to secure a photographic souvenir. As these cataracts are said to be impassable we changed our boats and our crews. Having bidden farewell to my beautiful canoe, which had borne me safely in spite of a leak, I was all the more pleasantly surprised to see it again, and in good condition, amongst the new craft. The men had succeeded in taking it through the raging torrent on long liane from the bank.

There is an island which lies in front of the waterfalls on which Mr. Hannam, the discoverer of nearly all the valuable mines in the Congo State, lives. This famous prospector had also found conglomerate gold in that spot, which justified the highest hopes and indicated a possibility of profitable working. Two of his agents were prospecting farther down the river, and apparently were equally successful. These finds gave further witness of the wealth which was lying around in the soil and not being turned to account. Mr. Hannam, whose frank and simple manner charms everyone, is, as may be easily understood, one of the most popular men in the State. Equipped with a very considerable amount of expert knowledge, gained in the most important mining centres of the globe, the Congo State has taken him into its service, and certainly not to its own detriment. For it was due to him that the abundant wealth of copper and gold at Katanga was discovered, and it was on his advice that the active and prosperous industry at Kilo was



A MOBALI (ARUWIMI)



A VILLAGE HEAD MAN OF DJAMBI
(ARUWIMI)

initiated. Thanks to his shrewdness, a whole number of smaller metal deposits have also been turned to advantage. The State shows its gratitude by giving him a salary which should satisfy the highest demands, as well as his full maintenance whilst in Africa. As this is over and above adequate for the upkeep of a whole family, a visit to Mr. Hannam is much prized, for no one ever leaves his small island without having gifts bestowed upon him. We, too, experienced his noted hospitality, and when we reached Mupele, after another seven hours' journey, our glasses, filled with Hannam's champagne, toasted the health of the genial donor.

Yet another incident heightened our pleasure in tasting the exhilarating beverage we had not seen for months, and that was our first meeting with a European lady for a twelvemonth! We met five boats in the centre of the stream, which flowed along almost imperceptibly. Under the awning of the first we saw the fresh young face of the wife of the *Chef de secteur*, Madame Milies, who for years has shared life and fate with her spouse in the interior of Africa. Although the animated conversation carried on from boat to boat was only of short duration, we were strangely moved at the chance meeting. It was like a greeting from far-off civilisation.

The next day was very cool, and a dense mist obscured all view. We had a trip of eight hours, during which the sun finally conquered the fog and began to shoot down its scorching rays in a fashion that made us welcome the sight of the Banalia encampment. On the journey we had come across several elephants standing in the stream, and one of them swam the whole breadth of the river in front of our boats. On a similar occasion I was successful in killing an elephant from the boat.

It was delightful to be able to stretch our stiff limbs again after sitting so long on the inflexible seats. There are rapids in front of the station, but they have not much volume of water, and there are shell banks on the bed of the river. Plenty of young women go in for fishing there; they remain under water for several minutes, scraping the shells from the banks. The

shells are made into ornaments; the fish are similar to oysters, and form a favourite article of food.

We reached Yambuya by way of Bakanga and the Bogbodet rapids on the afternoon of the 8th of May, and were at the end of our "romantic" journey by native boat. There we learnt that an early steamer was coming to pick us up and carry us to Basoko.

But our last day in the canoes was not destined to pass without accident. The boat occupied by my servant Weidemann (our general factotum in every sense of the word) filled with water in consequence of the stern striking a submerged rock, and lay on its beam ends. The occupants were thrown into the rushing stream, and as this boat happened to be the last of the procession the catastrophe remained unobserved, and it was a long time before the natives of the neighbouring village decided to assist the unfortunates, who were shouting and wildly signalling for help. The canoe was got to the bank, fortunately undamaged, but, sad to say, a number of stores, cartridges and letters, as well as a thousand photographic plates, were irrevocably lost.

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Yambuya, as well as Basoko, played an important part as a base on Stanley's memorable expedition to Emin Pasha's relief, and the boundaries of the old encampment are still recognisable. Directly opposite was the anchorage berth of the *Délivrance*, which we were anxiously expecting. When her shrill whistle at length broke the stillness of the river valley, we all rushed to the shore in eager excitement to feast our eyes on the sight of a regular steamer.

The *Délivrance* belongs to the smallest type of Congo steamer. She is furnished with a large stern-wheel, a deck lying almost level with the surface of the water, and an upper deck. The latter would be a splendid domicile were it not for the wood ashes which escape from the funnel and rain down to burn holes in your clothes. So we joined our Danish captain and made ourselves comfortable on the bridge, which was one



A MAN OF BASOKO

and a half metres wide and three metres long. The captain's is the only cabin.

I paid a visit to the great liane plantation of Patalongo, in company with Dr. Mildbraed and M. Lemoine, *Chef de poste*, a very droll, sociable fellow. So far as I am aware, it is the only settlement where liane alone are cultivated. When I was there there were as many as 320,000 *Landolphia* and 200,000 *Clitandra* seedlings on 800 *ha* of ground. The plantations are partly situated in the clearings of the forest itself, and partly in places which have been specially grubbed out; the latter, which admit the full influence of the sun, appear to be the better adapted to the purpose. It is to be regretted that here, too, the full development of the plantation is hindered in consequence of the lack of permanent labour. Only the most skilful hands can be utilised for the work, and the State engages each man in most cases for a period of twelve months.

The slow growth of the liane—which permit of no tapping till they have been planted for twenty years—deals a death-blow even to such a fine plantation as the one mentioned. In consequence of the huge pecuniary outlay and lack of advantageous return, the State has been forced to cease further attempts in this direction, and to content itself with the cultivation of the rubber tree.

Meanwhile, all our loads had been stowed on board the *Délivrance*, and we weighed anchor in the afternoon of the 10th of May. Soon the revolutions of the great stern-wheel were driving us along the Aruwimi with an easy celerity to which we had long been strangers. After a few hours of rapid journeying, in the course of which we had to steer a very zig-zag course in consequence of the frequent sandbanks, we anchored at Mogandju and passed the night there, after a very entertaining evening in the society of some very pleasant Belgian gentlemen.

Mogandju is the best-kept station on the whole length of the Aruwimi. It is surrounded by extensive coffee and cocoa plantations, and rubber trees are also cultivated. Attempts have

been made to grow cotton plants. It would be premature to pass any final judgment as to their ultimate chance of prospering, but the healthy appearance of the plantation indicated that the soil, at least, was promising.

After hearty farewells we proceeded on our course, accompanied by the retiring *Chef de poste* at Mogandju, M. Bisteau, who was going home on furlough on finishing his "terme." The whole village, with all the head-men, had hurried up to view his departure, and one read genuine sorrow in their faces at having to lose their kind and honoured master. They pressed around him, stretching out their hands and entreating him to return to them, and as long as we could see them from the steamer they kept on waving adieux. The feeling they exhibited was really genuine and a sign of the firmly cemented mutual interest existing between superior and subordinates.

Tranquil and unconcerned, we enjoyed the beautiful passage, until a violent shock made the ship tremble and took us for a moment out of our course. We had run with full force against a sunken reef falsely marked on the chart, or not marked at all, and the water was pouring with irresistible force through a great leak on the port side into the hold where our baggage was lying. Although the crew bailed continuously they could not keep pace with the constant stream of water; the bow sank deeper and deeper and the vessel threatened to sink. Nothing remained but to beach the ship. We steamed with full power against the brushwood on the northern bank. In vain! The *Délivrance* recoiled like a ball from the boughs, oscillating violently. "Full steam astern, hard a-port, and full steam ahead across the river!" came the orders, which were executed with admirable coolness. Then we saw the flat shore of a village on the further bank. To lessen the top-weight we all descended to the lower deck, which was nearly submerged. We exerted the engines to their uttermost and steered straight for the bank—still fifty yards, thirty, ten, and then a terrible crash! The steamer lurched heavily over, righted herself and rode firm. A hurrah of relief escaped our throats. Our brave boys, however,



A CONGO STERN-WHEEL STEAMER



A PLANTATION AT BARUMBU, CONGO

had not waited for the usual style of landing, but had sprung overboard pell-mell.

After the vessel had been emptied of all goods and luggage, the necessary repairs were begun. Not until sunset were we able to continue our interrupted voyage. We did not regret the halt, however, for dusk was just settling down in the virgin forest and stillness reigned, uplifting our spirits in an atmosphere of calm serenity. From behind the clouds the gleaming disc of the moon emerged in all its silvery splendour and disseminated that indescribable tropical charm over the surrounding scenery which calls up such an unconquerable yearning in the heart of a lover of nature. That feeling, which, in spite of all dangers and hardships, always draws him again to the vast mysterious territory of unexplored Africa. We sat mute on the deck, deeply stirred by the fairy-like scene.

After some hours a glimmer of light appeared in the far distance, then a second, then several. We were nearing our destination. Lying alongside the quay close to the outer wall of Basoko, we could discern the outlines of a large steamer. It was the *Flandre*, which was going to bear us down the Congo. We approached at half-speed. Orders were given. "Stop her! Back her!" and we made fast alongside. The officials of the station were waiting to greet us with the Commissaire général, Commandant van Vert, at their head. When, accompanied by him, we trod the wide streets of Basoko, we almost fancied we had returned to European civilisation again. And when later, for the first time for a twelvemonth, we lay in comfortable European beds and ran over the events of the past year in our minds, we were able to close our eyes in slumber with a feeling of perfect contentment. All troubles and dangers had been happily surmounted. The voyage in front of us on the Congo was only child's play. The work of the expedition was finished.

* * * *

Basoko is one of the largest and most important stations on the Upper Congo. It is an old fortified encampment of Stanley's, which has played a considerable part in the history

of the Congo State, especially at the time of the Arab rising. The fort consists of towers and walls provided with loopholes, extending along the Aruwimi. This extensive post comprises a considerable number of European dwelling-houses, magazines, barracks, a hospital and a prison. Broad, shady avenues of well-kept mango trees give the place a pleasant, homely look. The Commissaire général, who commanded the Aruwimi district at the time, escorted us round and pointed out the fruits of his and his predecessors' work.

We took the opportunity to examine one of the larger store-sheds. It was filled with cases of all sizes containing the multifarious articles with which the State pays its workers. Whole shiploads of stuffs, wire and beads, lay heaped up together with mountains of straw hats, leather belts and other European articles in bulk, which probably sprang from some Brussels or Antwerp bazaar. Ready money is not used in the Upper Congo. The State pays for its labour in kind, fixing the value itself, and in this way satisfies at the same time all civilised wants felt by the natives.

Basoko bears a bad reputation on account of its climate. Malaria, black-water fever, and dysentery have been fatal to many Europeans. They found a last quiet resting-place in the cemetery on the western side of the station under the shadow of the palms and the mango trees. A long row of cairns, constructed of bricks and lime, bear the name and date of death of those buried there. Formerly hardly a year went by without one or two names being added to the list of those who had passed away. Matters are improved to-day. The progress made in tropical medicine, the most brilliant success of which has been prophylactic quinine, has robbed malaria, and with it black-water fever, of a good many of its terrors, and dysentery has decreased with a more accurate knowledge of its causes. Yet, in spite of all, these illnesses are always the greatest dangers connected with a sojourn in the tropics.

I may, perhaps, in this space be permitted a brief word as to the state of health of the members of the expedition. Ex-



A MAN OF BASOKO



CONGO STEAMERS

cepting the misfortunes that overtook Raven and Weiss, scarcely one fell seriously ill—that is, sufficiently so to be confined to bed for any time. Slight attacks of malaria, dysentery and fever occurred at times, but were of an entirely harmless nature. I, personally, escaped all sickness. The only one who suffered a violent malarial crisis was Sergeant Czechatka. In his case the fever assumed a very threatening character. He, however, was also the only one who, as he himself confessed, did not keep strictly to the Koch malaria prophylactic, as we had done, viz., one gramme every seventh and eighth day.

We had to devote our two days' stay at Basoko entirely to the wearisome work of packing. Our special investigation work was concluded, and all our apparatus and the latest collections we had acquired during the journey down the Aruwimi had to be packed in such a way that they could be confided with an easy mind to the hold of the *Flandre*, and then consigned to a forwarding agent at Leopoldville for transhipment to Europe. When the last chest had been securely nailed down and duly marked, and had vanished into the bowels of the *Flandre* we all breathed freely once more, and had a feeling of holiday gaiety when we stepped aboard the ship, which awaited our departure on the 14th of May.

The *Flandre* is not a particularly fine vessel externally, any more than the other steamers which navigate the upper Congo. She is similar in type to the *Délivrance*, but is far larger, and is driven by two stern-wheels. Suitability for the work required was made the sole consideration in constructing all the steamers. The difficult conditions ruling the waters of the Congo, the numerous shoals which shift from time to time, etc., have to be taken into account, so that the boats are given the smallest draught possible. Thus in order that the cubic space may not be diminished, a proportionate breadth and a high superstructure have to be allowed. The resultant structure has not anything very shiplike about it. The comfort and convenience of the interior arrangements, however, soon reconciled us to a lack of mere external finish. These vessels have two superposed decks,

the lower serving partly as a cargo hold and partly as quarters for the black passengers and crew. On the upper level there is accommodation for Europeans. There are about sixteen cabins amidships, arranged in two rows, with their doors and ports opening on to the promenade deck, a passage way of about one and a half metres width encircling the whole vessel. We took our meals in a spacious part of the foreship, behind the captain's cabin, where there was a full passage for the air, and protection from the rain in the shape of curtains which could be let down. Taken all in all, the *Flandre* greatly surpassed our expectations with regard to the comfort of a Congo steamer. Our feeling of gratitude was still further increased by the kindness of the Government in having placed the steamer exclusively at our disposal. Thus, excepting ourselves, there were only four Belgians who had accepted my offer of a passage and had come aboard with us.

Basoko is one kilometre distant from the confluence of the Congo and the Aruwimi. So we still awaited the great moment when we should gaze on the mightiest river of the continent, yet the actual sight of it was far less impressive to us than it seemed to have been to the earlier trans-African travellers Stanley and Count Götzen. Our fourteen days' passage down the Aruwimi had accustomed us to the sight of huge expanses of water, so that, naturally, we could scarcely be seized with the same feelings that filled our predecessors at the sight of the Congo after their long years of hardship, privation, famine and danger. Thus, we hardly noticed the Congo, or any particular difference between the familiar picture of the lower Aruwimi and this new stream, which did not appear much broader. The reason of this lies mainly in the fact that during our entire Congo passage we never received the full impression of its immense breadth and might, although at its widest spot it exceeds thirty kilometres, for countless islands, sometimes a mile in length, succeed one another in an almost unbroken chain and obstruct the view.

The district chief at Basoko had recommended us to inspect

the Barumbu plantation, which 'lay only an hour away by steamer, and very kindly escorted us. This big plantation lies close to the river bank, and on it are grown cocoa, coffee, rubber, and cotton. The cultivation of the two last-named is in its infancy, but the other two are already producing excellent results. The cocoa harvest, for instance, amounted to thirty-four tons for the four months preceding our arrival. The higher officials of Basoko possess a kind of Tusculanum in Barumbu, a stately, spacious house beautifully situated on a hill in the centre of palm groves and blooming gardens, from which a wonderful view of the river framed by the primeval forest is obtained.

Without doubt there are more interesting journeys in Africa than a voyage on the Congo. For instance, it is not so full of diversity or so absorbing as travelling on the Uganda Railway. Yet it would be unjust to condemn it as being devoid of charm, as the Congo officials do. We enjoyed the agreeable and new experience of sitting at table and having the forests and villages passing before our eyes as if we were present at a panoramic performance. Considerable demands are made upon the captain during this trip. With straining eyes he has to "read" the water, that is to say he has to look out for the least curling or roughening of the surface which betray the presence of shoals, and avoid them by constant zigzagging. He dare not leave his post forward on the upper deck during the course of the voyage. Behind him a reliable black takes the helm, and on the lower deck, under the incessant scrutiny of the captain are two other darkies who measure the varying depth of the water with two long poles. It is no uncommon event, however, for a steamer to run aground, in which case it may have days or weeks to wait until it can be floated with the assistance of another vessel. We were mercifully spared that misfortune, thanks to the captain and the high level of the water. Of course we only steamed by daylight; at night we anchored anywhere, if possible at some village. These halting places serve at the same time as depots for wood, which is used exclusively for firing in consequence of the lack of coal. The supplementing of these wood stores is a business which is

left entirely in the hands of the natives. One load does not suffice for the daily consumption of a 150-ton steamer of the *Flandre* type. Our fuel had to be replenished more than once during the course of the day. Fortunately the banks of the Congo are well timbered, and there is wood in abundance. The forest region ceases just before the Kasai estuary and steppe country takes its place. We often peered through our glasses in the hope of espying game of some sort, and in fact we occasionally discerned medium sized red antelopes, and once the great head of an elephant who was dreamily flapping his enormous ears. The river fauna, too, grew more abundant. Thus far we had not met with any crocodiles or hippopotami on the Congo. We met them now in rich abundance. The river was animated with pelicans, flamingoes, and screaming sea-eagles; it was quite amusing to see the crocodiles lying lazily stretched on the bare yellow bank apparently in happy family union with the long-shanked flamingoes and pelicans. They appeared entirely indifferent to the passing steamer.

Up to the present, traffic on the upper Congo and on the lower reaches of its great tributaries has been maintained exclusively by the Congo Free State steamers. Any private vessels belonging to privileged trading companies, or the scattered mission stations, cannot at present be taken into consideration. There are about forty-five steamers in the fleet, varying from about thirty-five to five hundred tons each. Three of the largest are used for cargo traffic entirely. The second larger type, like our *Flandre* and two sister ships, have a tonnage of one hundred and fifty tons, and are intended mainly for passenger traffic. There are other types and sizes also down to thirty-five tons. The steamers leave Stanleyville and Leopoldville every fourteen days, the larger type alternating with the smaller. The journey from Leopoldville to Stanleyville is accomplished in about three weeks according to time-table. In the reverse direction, down stream, about fourteen days are requisite. We took only eleven days, having no cargo to load at any point.

During the course of our trip we frequently passed boats which

were not so well equipped as the *Flandre*. As the State looks upon economy as of more importance than celerity in the despatch of its goods and its agents, and there is not much room to spare in the small steamers, a small craft in the shape of a lighter or barge is sometimes attached alongside the vessels. We saw one of these a few days out from Basoko. There were twelve passengers, *agents d'État*, on board, and only nine available berths. Three of them had to camp on the deck, which was not any too spacious.

Military stations on the upper Congo are so numerous that we arrived at one daily, and we always met with a most cordial reception. One day we anchored at Lisala, one of the great depots for troops of which I have made mention in another place. This large encampment occupies an elevated position on the right bank of the Congo and commands a beautiful view of the broad river and its maze of islands.

Soon after leaving Lisala we passed the spot where, only a short time previously, the *Ville de Bruges*, a thirty-five-ton steamer, had been thrown on her beam ends by a hurricane which had swept up the stream with terrific force. Nearly all on board lost their lives, including six whites. Some of the Europeans succeeded in swimming to the banks, but were killed by the natives who had flocked to the scene in the hopes of wreckage, and fell victims to cannibalism. Only one white escaped, a Finn, and, clinging to a plank, he was swept down the stream. Two days later he was found on an uninhabited island, half crazy with hunger and the perils through which he had passed. Unfortunately the poor wretch understood no language but his own. Thus the sole living witness of the catastrophe was unable to give any account of it whatever. The wheel-house of this ill-fated vessel still projected from the water, a dumb token of the sad accident and a forcible reminder that even a harmless-seeming trip on the Congo has its dangers.

We, too, had our share of bad weather during the voyage. It vented itself in torrential rains and tropical thunderstorms, which burst down upon us from a serene sky with such force

that the banks of the river were completely obscured by the rain. At these times the captain had no means of keeping his course, and we had to anchor immediately. Where a strong wind accompanied these downpours we endeavoured to find some tolerably sheltered spot near the banks, where we often stayed for hours until the weather cleared. Heavy morning mists, too, frequently delayed us in starting.

We arrived at Nouvelle Anvers, which is one of the largest stations of the interior, and officered by fifteen white men, on the 17th of May. Its numerous substantially built structures give an excellent impression. The mission church really amazes one by its size and its dignified beauty, and is an excellent example of the building powers possessed by the negroes when under proper European control. The station is situated in the centre of a district that is visited heavily by sleeping sickness. This is a fact borne witness to by a hundred patients who were lying in the local hospital undergoing the atoxyl treatment. The State, as I have previously mentioned, is fully alive to the terrible danger of this plague, which is spreading more and more in the Upper Congo, and spares no efforts in combating it. In the big hospital laboratory at Leopoldville the origin and treatment of this dire disease forms a subject of most serious scientific study, but, so far, no positive and lasting success has resulted.

Coquilhatville, our next stopping place, is the terminus of the telegraphic connection with the coast. It is a very attractive looking spot and lies in the midst of beautiful horticultural gardens. The Commissaire Royal, M. Henry, a special ambassador from the sovereign, was stopping there. He was travelling under supreme commission of State to examine into the conditions of the stations and the state of the natives, and was to report later direct to His Majesty. These visits, which are repeated at intervals, prove beyond doubt that the Government is actuated by the best of motives, and does all in its power to protect the natives from any injustices.

Twenty minutes' steaming sufficed to bring us to Eala, the

botanical experimental garden, which we had the pleasure of inspecting in the company of its director. It serves scientific and practical aims jointly. Amongst its numerous products may be mentioned rubber, gutta-percha, cocoa, tea, vanilla, coca, patchouli, and other articles. It was a visit of especial interest for our botanist, and a pleasure to us laymen to see amongst the thousands of plants the producers of such old and familiar articles of common household use as tea, vanilla, and, if you like, patchouli.

Next day we reached Irebu, a great military depot. Eight hundred black soldiers were being drilled into shape at the time of our visit. We had the pleasure there, long denied us, of dining in the company of a lady, Madame Jeuniaux, wife of the Commander of the military depot. After dinner we had a regular concert—songs with harmonium accompaniment. It quite stirred us to hear German songs sung in a very pretty voice by a lady, especially after having had nothing better in the way of music than our hoarse old gramophone for a year.

On the following morning we left on our four days' voyage to Leopoldville, the terminus of our steamer journey. These passed quickly, as the scenery was always changing. We only passed small posts at this part of the Congo, the duty of whose occupants is to look after the maintenance of the telegraphic connection. This duty is a very severe one, for the lines to be controlled are of great length and extend over many miles of fever-laden swamps. The officials are constantly compelled to take exhausting journeys in order to repair the damages inflicted by the elephants, or otherwise.

After passing the mouth of the Kasai, one of the largest tributaries of the Congo, we crossed Stanley Pool on the 24th, a great water basin of two hundred square kilometres. Heavy fog lay on the water and forced us to anchor again. When the sun's rays at last pierced the vapour, the white houses of Brazzaville were gleaming in the distance from the northern shore, and those of Leopoldville from the southern. Not wishing to miss the opportunity of seeing the capital of a French colony, I had

communicated the day before with the Governor of the French Congo, who resides at Brazzaville. As seen from the river, the town lies prettily situated on the high banks, which are thickly covered with trees and gardens. A trim, winding road leads up from the river to the fine Government residence, which is surrounded by beautiful verdant grounds, and whither we were conducted by two officials, who had been specially sent to receive us. After having been presented to the various assembled officials, we set out on a brief tour of inspection of the hospitals, schools, barracks, and other buildings, which made a very favourable impression on us as regards French colonial work. As time pressed, we departed from Brazzaville after a three hours' stay, and a quick trip across the pool landed us in Leopoldville at noon.

The importance of this point as the starting port of the shipping to the Upper Congo, as the central trading place for the interior and the seat of the higher administrative authorities, is indicated by its immense extension along the southern bank of the Pool. The quay was alive with traffic and the harbour was crowded with Congo steamers of all sizes. Some were laid up for cleaning and repairs. Steamers are put together here from iron plates made in Europe, and then launched. Close to the quay lies the railway terminus of the Matadi-Leopoldville Railway. The district chief and the commandant of the garrison came along to welcome the *Flandre*, and handed us letters and newspapers from Europe, an event which always gave us pleasure. In the afternoon we went for a walk through the town, and were very much struck by the large number of factories, which appeared to be in a flourishing condition. During our journey through the Congo State we had, so far, not come into contact with any private enterprises. The State is the only commercial agency in so far as the native demand is concerned, which deals with the bartering in stuffs, beads, etc. The streets and houses in Leopoldville are clean and attractive in every way. Sleeping sickness forms a subject of the most vital interest; only a short time ago cases of trypanosomiasis were almost unknown amongst



ATMOSPHERIC ACTION ON QUARTZ ROCKS



MATADI

the white men. Unfortunately, they have increased, and the chief physician of Leopoldville assured me that very few months pass without some European, smitten with the fell disease, being brought into hospital.

We were most courteously treated by the authorities, who had kindly placed an express train consisting of three carriages at our disposal to take us from Leopoldville to Matadi. In order to break the journey of 480 kilometres, we spent the night at Thysville, about half-way, in an excellent hotel belonging to the railway company. The port lies 740 metres above sea level and nearly 500 metres higher than Leopoldville, and the pleasant, cool climate it enjoys makes it a favourite resting place for weary travellers coming from both directions. Leaving early next morning, we travelled along a track of railway which is admirably and skilfully laid out. Although no tunnels have had to be made, and very few bridges were necessary, many other difficult obstacles have had to be surmounted. The embankment all along the line is in first-class order. All the employees, including engine-drivers, inspectors, and repairers of the line, are blacks, who carry out their duties with all the skill and adroitness of Europeans. The track has a pretty sharp descending gradient a little way before reaching Matadi. It crosses several rushing mountain streams and deep ravines, and winds around steep slopes. Three or four serpentine tracks followed close on each other and reminded us of certain venturesome Alpine mountain railways.

At the last station before reaching Matadi the line bridges the Mposo, an important confluent of the Congo, which rushes past deep down in the valley, and immediately after passing it we caught sight of the latter majestic river once more, which we had not seen since leaving Leopoldville. Framed in by lofty mountains, the broad and mighty stream tears onward to the sea. On arriving at 5.30 in the afternoon, we found a considerable number of Europeans waiting on the station platform, partly to greet us and partly for the ordinary scheduled train, due shortly after ours. We were received by the Vice-Consul, Herr Schmidt,

and by the Commandant at Matadi, and shown to our quarters, enjoying some very pretty views of the town and harbour on the way. Matadi is a place of considerable importance, as it is virtually the seaport town for the whole of the Congo State. Ocean-going steamers are able to navigate the stream up to this point. Numerous Government and private buildings reach from the harbour to fairly high up on the hills. All the buildings are constructed of iron and corrugated iron, and consequently lacked the cheerful appearance of the stations we had been accustomed to meet on the Upper Congo. The town does not bear a very good reputation on account of the great heat which prevails, the mountains around shutting out all fresh breezes. The place seemed better than its repute to us, probably because we had grown accustomed to high temperatures. Two vessels were lying in the harbour—the *Albertville*, a 4,000-ton steamer belonging to the Compagnie Belge Maritime du Congo, which plies every week between Antwerp and Matadi, and the Governor-General's yacht *Hirondelle*, which was to carry us to Boma next day. During our rest at Vice-Consul Schmidt's hospitable house we learned that within a few days' time we should be able to leave Boma by the English steamer *Mandingo*, of the Elder Dempster line, which runs to the Cameroons.

Next morning the smart little *Hirondelle* took us to Boma in two and a half hours. The Governor, M. Fuchs, was unfortunately confined to his room by indisposition, but he had asked his secretary and the *Commandant de force publique* kindly to meet us at the landing jetty. We forgathered later at the Governor's residence. He has lived for fifteen years on the Congo, and, having traversed the whole territory through and through in the course of years, has become one of the foremost living authorities on the subject. In consequence of his excellent personal qualities, his courtesy, kindness, and great experience, he is held in very high esteem, and we shall not soon forget the pleasant hours we passed in his house.

Boma lies in the midst of green gardens and shady avenues.

The hospital, the official and the private buildings lie a little distance away from the river; the city proper, the commercial part, the factories and the negro quarters extend along the bank. A steam tramway, on which officials are allowed a free pass, connects both parts. An experienced guide accompanied us on a tour of inspection of the chief buildings and their internal arrangements: the native hospital, which is built in conformity with all modern hygienic ideas, the barracks, the school, the prison, etc. The latter contains a separate part intended for white men, which consists of thirty single cells of equal size and a common mess-room. This arrangement has proved to be necessary in case it should happen that twenty Europeans should be simultaneously expiating their offences, which for the most part consist in the oppression of the natives. Everything we saw in Boma pointed to practical experience and exemplary method. As we promenaded through the *jardin publique* next day (Ascension Day) at the hour when the *élite* of Boma was wont to air itself, we listened to the strains of a negro band and enjoyed hearing many a familiar tune again.

In the meantime the captain of the *Mandingo* had telegraphed from Loanda announcing that he would arrive at the mouth of the Congo at noon on the 29th of May. We were to be taken there by the *Wall*, a small Congo State steamer which plies between Boma and Matadi. The Governor and other gentlemen courteously saw us aboard the *Wall*, and in glorious weather, with hearts rejoicing, we steamed to the open sea, which we had not seen for a year.

Sunk in thought, we gradually approached the mouth of the Congo, hardly observing the gradual receding of the river banks and the slowly changing colour of the water, till our attention was aroused to the proximity of the ocean by freshening breezes and an increased pitching of the boat. Then, having drawn abreast of the large islands which lie in the channel and obstruct the view, we saw the ocean at last, stretching blue and limitless before us. The waves were glittering in the sunlight as if they were spangled with gold, and their crests were curling with

foam. A small black cloud on the horizon indicated the approach of the *Mandingo*.

We were soon alongside the fine vessel, just as she was letting her anchor drop. In a rolling sea the *Mandingo* took us and our impedimenta aboard, and, weighing anchor again, stood out towards the north. The *Wall* dipped her flag in a farewell salute whilst the flag of my native country was hoisted at our peak.

We stayed a brief period at the Cameroons, and paid a day's visit to Lome, the capital of Togo, but the expedition's exploration work was completed. Time will never efface the impressions we had received. We had roamed over sun-scorched steppes and through boundless primeval forests; passed over four immense lakes and snow-capped mountains, and had gathered a rich store of memorable experiences indeed. We were returning home buoyed up with the knowledge of having done our duty, and having assisted, as far as in us lay, in the unravelling of many important scientific problems.

CHAPTER XI

RESULTS OF THE EXPEDITION

IN the spring of 1909, at the opening of the exhibition in the Zoological Gardens at Berlin, which was intended to afford all those interested in colonial and scientific matters a preliminary survey of the results of the expedition, exclamations of surprise could frequently be heard escaping the lips of learned men in respect of the great extent and remarkable variety of the exhibits. Few of those present had, up to that moment, harboured the remotest idea that our expedition would bring back such a notable mass of interesting scientific material as a result of its twelve months' exploration work. Yet the exhibition building only contained a comparatively insignificant proportion of the collections sent from Africa. The limited space at our disposal had to be taken into consideration, and it was also adjudged wise to present merely a characteristic selection to the public, which would not fatigue the eye.

In any case, the interesting botanical specimens, the maps and charts carefully drawn up by the aid of the photo-theodolite, the geognostic samples, the innumerable exhibits in spirits, the hides and skulls, and, certainly not least, the rich ethnographical collections, with the numerous pictures of peoples and places, all served to convince expert and experienced judges that every member of the expedition had done all in his power to fulfil his own particular duty. In one word, the expedition had *worked*.

I will now give a brief summary of the main outcome of our labours, more especially for the benefit of those who may not have an opportunity of perusing the scientific volumes which

are to follow this narrative. Any final judgment concerning the value of the scientific results attained by the expedition will not be possible yet for a considerable time.

As regards topography: the so-called "white spot," *i.e.* the territory north of Mpororo, between the Kagera and the Kakitumbe, was thoroughly surveyed in two plane table surveys on a scale of 1:100,000, with an area of 2,700 square kilometres. Further, the volcanic region beginning at the northern point of Lake Kiwu, nearly up to the 30th degree of longitude, was surveyed on a scale of 1:100,000, with an area of 2,500 square kilometres. One hundred and thirty stereographic views were taken of fifty-one theodolite stations, which were computed later by the stereo-comparator, and which have yielded a positive groundwork for the survey of the country. Observations of altitude were taken at three hundred and fifty various points by means of the barometer and the thermometer. After finishing the plane table surveys, attention was devoted to the road surveys, which were revised and amplified by means of the photo-theodolite and by astronomical observations. This work went on without intermission; when our topographer fell ill it was still supervised by him from his invalid hammock. Longitudinal, latitudinal and time computations were made with the assistance of eight chronometers. Magnetic observations were taken at fourteen stations with deviation, magnetometer and standard compass. Two maps covering an area of 8,670 square kilometres have now been completed and are ready for the printer.

Our geological investigations in the north-western part of German East Africa, especially the geological cartographical survey of the "white spot," went hand in hand with the topographical work. Working conjointly, our geologist and topographer succeeded in making a geological profile chart of Bukoba right through Karagwe and Ruanda to Kissenji on Lake Kiwu. Close attention was given to the contingent possibility of useful minerals being discovered. Search made in this direction led to the finding of veins of iron ore in the quartzites. Further,

valuable material was gained for the observation and diffusion of ferruginous conglomerates, which up till then had been erroneously termed bog-iron-ore. Bornhardt in his fundamental work on the surface configuration and the geology of German East Africa had already suggested that this mineral species is by no means identical with our swamp-ore, but he wrongly connected its origin with the underground water. Time was also devoted to the study of the various forms of atmospheric disintegration which were encountered; also to the hot springs of Mtagata in Karagwe, Irungatscho and Maji ja moto. During Kirschstein's stay of half a year in the volcanic and lake territory he explored the Virunga volcanoes to the north of Lake Kiwu with regard to their formation, the eruptive effects of their magma, their subsoil and their tectonic relations. Investigations which were made respecting the earlier water-level and extent of Lake Kiwu and Lake Albert Edward, and especially as to their origin and mutual relations, finally led to the conclusion, supported by geological and palæontological remains, that these two lakes formed a common water-basin before the birth of the volcanoes, which stretched out 45 kilometres northward beyond the present-day northern shores of Lake Albert Edward. Altogether twenty-eight loads of stone and rock were collected. Seventeen of these fall to the share of the volcanic territory; the north-western portion of German East Africa accounts for five (west shore of Lake Victoria, Karagwe, North and East Ruanda); the fossilised molluscos fauna of Lake Kiwu yielded two, and four loads came from the western margin of the Central African rift-valley and from the Congo basin. A preliminary report of the geologist's researches will be found in the *Mitteilung a. d. Deutsch. Schutzgeb., Jahrgang, 1908*, page 168.

The expedition's botanical spoils comprise 3,466 specimens. The larger part has already been arranged and classified at the Royal Botanical Museum at Berlin. So far forty-nine new liverworts have been found, and a cursory inspection of the feather-mosses leads one to believe that this figure may be increased;

233 new species and four new families of phanerogamous plants were also found. Particular interest attaches to the collections from the Rugege forest and from the volcanic region, which fill up a considerable gap in our knowledge of African alpine flora. A scientific treatise dealing with these collections has already appeared in the proceedings of the Royal Prussian Academy of Science, Berlin, for the year 1909, entitled: "*Die Vegetationsverhältnisse der zentralafrikanischen Seen-zone vom Viktoria-See bis zu den Kiwu-Vulkanen. Bericht über die botanischen Ergebnisse der Expedition des Herzogs Adolf Friedrich zu Mecklenburg, 1907-1908.*" (J. Mildbraed.) The most important result obtained, however, is the establishment of the fact that a large number of botanical families and species which had hitherto been believed to be limited exclusively to the forests in the neighbourhood of the west coast, really reach as far as to the region of the upper Ituri, almost to the foot of the Ruwenzori chain, and that therefore the great African hylæa forms one homogeneous botanical whole.

Schubotz throws light on the zoological work done in a preliminary report published by him in the proceedings of the Berlin Society of Naturalists, year 1909, No. 7 (*Vorläufiger Bericht über die Reise und die zoologischen Ergebnisse der deutschen Zentralafrika-Expedition, 1907-1908, von Hermann Schubotz*). The collection, which was transferred to the Berlin Zoological Museum, comprised all sections of the animal kingdom, and consisted numerically as follows: 834 mammals (hides, skeletons, skulls, specimens in methylated spirits), 800 bird-skins, 173 reptiles, 204 amphibious animals, 708 fish, 1,452 decapods, 686 molluscs, 7,603 insects and several hundreds of smaller forms, 1,181 arachnidæ, 167 myriopoda, 637 worms (oligochæta, hirudinidæ, nematoidea, cestodea, and turbellaria), 40 glasses of plankton, 4 glasses of bryozoa, 27 spongiæ, and various swamp and moss specimens. The classification of this material by learned experts, which unquestionably contains a great number of new forms, especially among the lower animals, will be a labour of some years. There are a considerable number

of new vertebrates too. Twenty-five new species of birds were discovered, the classification of which was greatly facilitated with the aid of Reichenow's great work on African ornithology.

The ethnographical-anthropological results were as follows: 1,017 skulls and about 4,000 ethnographica were collected, 4,500 people measured, 700 photographs and thirty-six plaster of paris masks taken (eight Batwa and five Wambutti amongst them), and 87 phonograms and 37 languages recorded. A preliminary report from Czekanowski's pen on the anthropological-ethnographical labours of the expedition during the period from the 1st of June, 1907, to the 1st of August, 1908 (including an ethnographical chart of the Nile-Congo-Intermediate territory), is to be found in the *Zeitschrift für Ethnologie*, *Jahrgang*, 1909, volume V.

Such, in broad outlines, are the scientific results of our expedition into the heart of Africa in so far as they can be summed up at present. They have not been left without recognition by the critical experts of the Royal Berlin Museums, and should they on closer investigation prove to be a valuable contribution to our knowledge of Equatorial Africa, as is confidently expected, we shall think ourselves fully rewarded for our labours and hardships.



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